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CERTAIN CADDO SITES IN ARKANSAS

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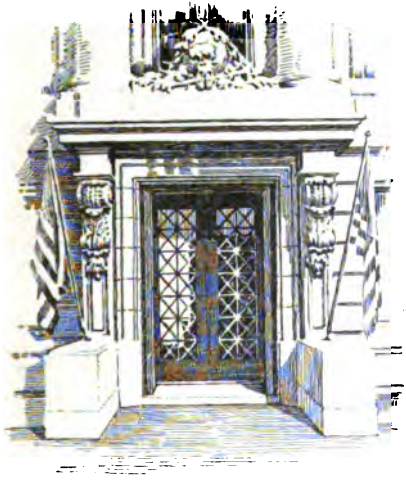

POTTERY BOTTLE SHOWING INCISED LINES FILLED WITH RED PAINT FROM MOUND NEAR WASHINGTON, ARKANSAS
(Height, 6⅞ inches)

INDIAN NOTES AND MONOGRAPHS

A SERIES OF PUBLICATIONS RELATING TO THE AMERICAN ABORIGINES

CERTAIN CADDO SITES IN ARKANSAS

BY

M. R. HARRINGTON

NEW YORK

MUSEUM OF THE AMERICAN INDIAN

HEYE FOUNDATION

1920

H 238 C

THIS series of INDIAN NOTES AND MONOGRAPHS is devoted primarily to the publication of the results of studies by members of the staff of the Museum of the American Indian, Heye Foundation, and is uniform with HISPANIC NOTES AND MONOGRAPHS, published by the Hispanic Society of America, with which organization this Museum is in cordial coöperation.

CERTAIN CADDO SITES IN ARKANSAS

BY

M. R. HARRINGTON

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FOREWORD

FOR many years Mr Clarence B. Moore, of Philadelphia, has been engaged in the systematic excavation of archeological sites throughout the Southern states, and although during this period his studies have extended along the larger streams over a vast area, there are sections that it has not been practicable for him to reach. The Museum of the American Indian, Heye Foundation, in 1915, desiring to lend its aid to the elucidation of the problems involved, sought the advice of Mr Moore, who, with characteristic helpfulness, recommended that field studies be undertaken by the Museum in the territory drained by Red river in southwestern Arkansas, near Fulton in Hempstead county, thus supplementing his own studies which appear in "Some Aboriginal Sites on Red River," published in 1912 by the Academy of Natural Sciences of Philadelphia.

It was therefore in consequence of Mr Moore's recommendation that an expedition was organized under the immediate direction of Mr M. R. Harrington, which took the field in February, 1916, headquarters being established first at Fulton. The work of excavation was continued uninterruptedly for twenty months, assistance being rendered by Mr Alanson Skinner for three months, by Mr E. F. Coffin for four months, and by Mr Charles O. Turbyfill during the entire period. All are members of the Museum staff. For somewhat more than a year the research was conducted in Hempstead county; in Howard county it was continued for two and a half months, while the remainder of the time was spent in Garland county. The results of the work herein presented by Mr Harrington speak for themselves.

The field photographs used in illustrating the memoir were made by Mr Harrington, while those representing artifacts are the work of Mr Jesse L. Nusbaum.

GEORGE G. HEYE,
Director.

INTRODUCTION

IN THE latter part of January, 1916, the writer was commissioned to explore archeologically for the Museum of the American Indian, Heye Foundation, that part of southwestern Arkansas lying north and west of Fulton (fig. 1), near which point Mr Clarence B. Moore had ended his mound exploration of Red river.[1] Our party arrived on the ground about the first of February, only to find that Red river was at high flood stage, in fact, breaking through the levees into the village of Fulton as we arrived, and that the lowlands, where lay many of the mounds we had hoped to explore, were completely under water and inaccessible. This, of course, prevented the carrying out of our original plan, which was to follow Red river westward, for which Mr Moore had kindly

provided abundant data secured by his representative, Capt. J. S. Raybon.

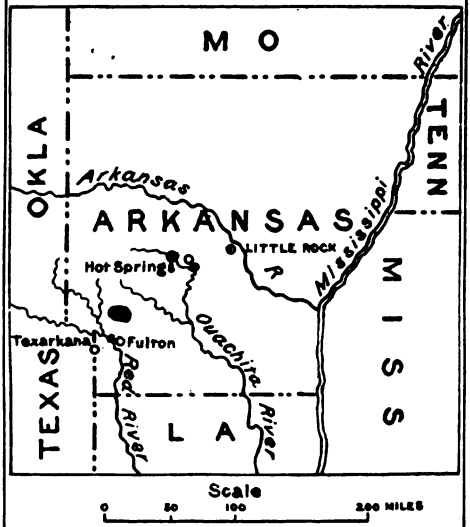


FIG. 1.—Map of Arkansas, showing localities explored

Two alternatives appeared to be left us: one, to wait until the river receded to normal, which in February might require

considerable time; the other, to proceed inland, out of reach of the floods, and there work temporarily, at least, in the hope of finding something of interest. We were provided with a camping outfit but did not, at that time, expect to remain more than six weeks in the field, hence it was imperative that some decision be reached without delay. We finally concluded to proceed inland, and carried out our resolve within a few days, with the result that we did not return to Red river, and met with such success that the expedition which had left New York with the idea of returning in about six weeks, remained in the field for a period of no less than twenty months.

This paper will consider first of all an account of the explorations during these twenty months, the sites visited and the work done on each; and will then discuss the specimens gathered, and the facts that may be derived from them and the circumstances of their finding concerning the people who made them—the Caddo tribes found in this region by the first European travelers. The contemporary writings of

these adventurers form the best evidence connecting our finds with these Indians, and help to explain many phenomena that would otherwise be difficult to understand; while their accounts of daily life and customs help to fill gaps in the picture where archeology alone would be helpless—our picture, pitifully incomplete at best, of Caddo life before the white man came.

M. R. H.

CERTAIN CADDO SITES IN ARKANSAS

By M. R. Harrington

CHAPTER I

Mound on Battle Place

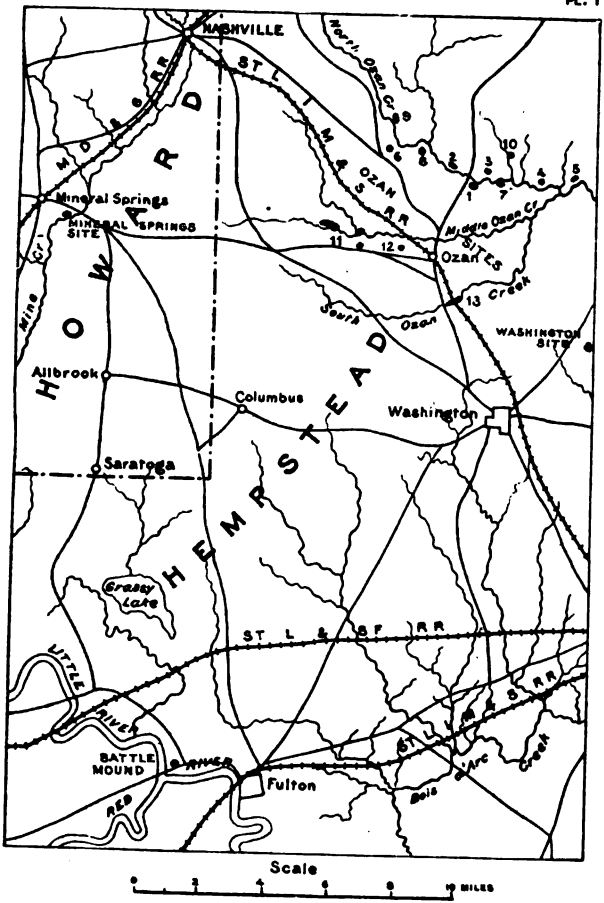
BEFORE leaving Fulton, as mentioned in our Introduction, we learned that there was a mound on the Battle farm, some three miles west, which remained out of water and could be worked without trouble, a mound that had yielded a pottery vessel to the desultory scratching of local collectors. It lay on the brink of a low terrace of the Red river bottoms, perhaps half a mile north of that stream and a quarter of a mile east of Little river, which empties into the Red at this point (pl. 1). The mound was of the platform type, much mangled by cultivation, and measured approximately 80 ft.

from east to west and 45 ft. from north to south, while the composition seemed to be surface soil, much of it containing charcoal, ashes, chips, potsherds, animal bones, and the like. The middle portion was only three or four feet high, but there seems to have been a small mound at each end of the platform, for at these points the structure, even in its present dilapidated condition, is two or three feet higher.

Several days were spent here in testing, but practically nothing was found except the village refuse, and one specimen from the general digging that was really unusual —the lizard-shaped bone awl or pin shown in fig. 34. Finally we abandoned the mound and commenced to look for more promising sites away from the river.

Mound East of Hope

After many inquiries we visited a large, steep-sided mound near the Liberty Baptist Church, some eleven miles east of Hope in Hempstead county, Arkansas, but this had been used as a cemetery in modern times and could not be explored.



MAP SHOWING SITES EXPLORED IN SOUTHWESTERN ARKANSAS

THE FLOWERS MOUND GROUP NEAR OZAN

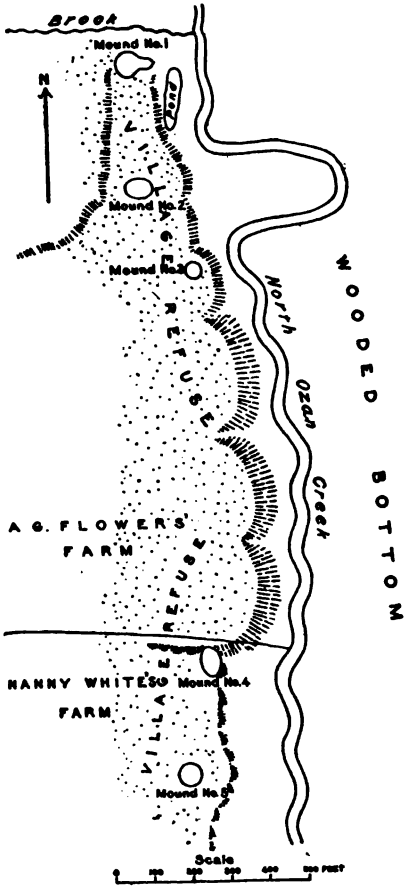
Investigating then near the little village of Ozan, in the same county, still farther away from the river, we heard of several mounds, and finally obtained permission to work in a group on North Ozan creek, about four miles northeast of the town, lying partly on the farm of Al. G. Flowers and partly on that of Nanny White, both colored. There were five of these mounds and traces of a sixth scattered along for nearly half a mile on the crest of a low bluff west of and overlooking the creek bottoms, with village refuse almost continuous between them. This site we called "Site 1, Ozan, Ark." in our notes; its location may be seen in the map of the region (pl. I).

MOUND 1 is situated at the northern end of the group, on the Flowers farm, as may be seen in the accompanying sketch-map (pl. II). Large and somewhat irregular, it was nearly 16 ft. high on the western side and the base measured about 138 ft. long by 108 ft. broad in the widest place.

The western portion had a summit plateau 43 ft. 6 in. by 52 ft. 3 in., from which ran a narrow extension to the east about 4 ft. lower and some 50 ft. long (pl. III).

Town-house.—Excavation revealed little except, at a depth of 5 ft. 3 in. in the main part of the mound, the hard-baked clay floor of a nearly square building with a covered entrance-way or vestibule, all outlined by post-holes and measuring about 18½ ft. by 19½ ft. On this floor lay a mass of burnt débris, in part the remains of a roof composed of poles, cane, and grass, which Mr Skinner, who directed the excavation of this mound in the writer's absence, interprets as showing that the edifice had wattle-and-daub walls and a thatched roof.

Pieces of the interior stucco, showing traces of green paint, were found. Judging by the light, feathery condition of the ashes of the roof thatch, which seemed never to have been touched by rain, Mr Skinner thinks that the ruins were covered by the Indians with a five-foot layer of earth soon after the structure had been



SKETCH MAP OF SITE 1, OZAN

destroyed by fire. This was probably to make the platform higher as a foundation for a new and more imposing edifice, in which case the earlier one may have been fired purposely. Mr Skinner does not think that the building could have been an earth-lodge, such as were observed later in or on many other mounds of this district. His report in full will be found appended to this paper. Scattered specimens only were found in this mound, and only one skeleton, without objects, at a depth of 13 ft.

MOUND 2.—The richest mound on the site was Mound 2, which lay about 300 ft. south of Mound 1 and about 100 ft. back from the bluff; it measured 55 ft. from north to south and 76 ft. 6 in. from east to west. Although made mostly from rather soft, loamy, surface soil, and plowed for years (pl. IV), it still retained a height of about 5 ft. from the top down to the original subsoil upon which it was built, the topsoil having been apparently first scraped away before the structure was commenced.

Altars.—On this solid bottom were found one rectangular and two circular altars or

hearths, in the respective positions shown in the accompanying plan (pl. v), each outlined by raised rims of burnt clay on the original hardpan. The longer axis of the rectangular altar, which measured 57 in. by 31 in., lay nearly northwest-southeast; and the altar itself was divided into almost equal parts by a transverse ridge of baked clay. The circular altars were about 30 in. in diameter. Nothing was found in any of them except charcoal and the hard-burned nest of a "mud-dauber" wasp.

Purpose of the Mound.—At first we considered this mound as one built purely for burial purposes, but, after exploring many others that were surely the remains of earth-lodges, the writer thinks that this may once have been a building of some sort, with the three hearths or altars built upon its floor; but as five feet of earth is too much to have been merely the remains of an earth-lodge roof, it is probable that after the collapse of the first building into mound form, more earth was added to make a foundation of a new building, and

MOUND 1, SITE 1, OZAN, LOOKING SOUTH. A TYPICAL DOMICILIARY MOUND
The tent is part of the Expedition camp

after the destruction of this, or perhaps while it was still standing, a number of interments took place. The finding, on the altar, of the mud-dauber's nest (such as these wasps still construct in any edifice they can enter), certainly helps to bear out the theory that a building once stood on the site of the mound.

Burials.—Remains of many burials were found in the southern and eastern portions of the mound, and to some extent in the western, but not in the northern part. To the number of forty-three these burials were encountered at all levels, from the surface, where some had actually been struck by the plow, to far below the base of the mound in the subsoil, and nearly all were accompanied by pottery vessels or other objects of interest. The graves in the mound proper were difficult to trace until the bones or vessels were actually encountered, on account of the homogeneous nature of the soil, which did not show signs of disturbance; but when the graves penetrated the compact subsoil they were much easier, not only by reason

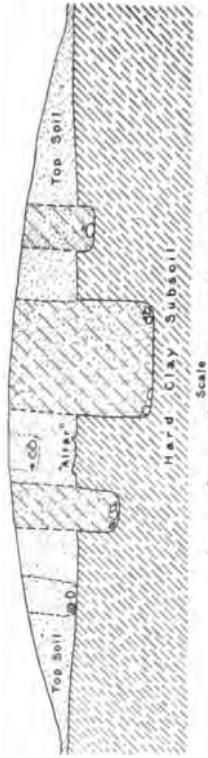


FIG. 2.—Diagrammatic section of Mound 2, Site 1, Ozan

of the break in the otherwise solid bottom, but because the clay from it was found mixed with the mound soil above, and mound soil mixed with the clay below. After a little experience we were able to tell, on encountering a mass of subsoil clay mixed with the mound soil, the approximate depth the grave beneath would prove to be —the deeper the grave, the more clay in the mixture. This is brought out in the accompanying

MOUND 2, SITE 1, OZAN, LOOKING NORTHEAST. A TYPICAL BURIAL MOUND, BUT CONSIDERABLY DAMAGED BY CULTIVATION

diagram showing an ideal section of the mound (fig. 2).

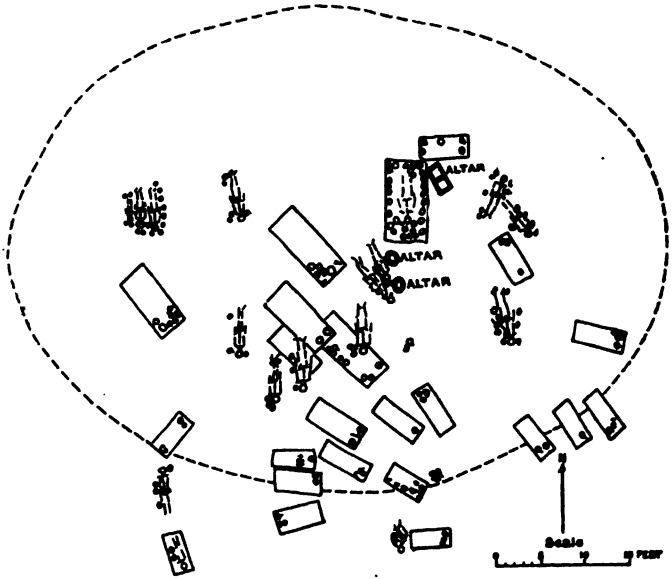
Nearly every grave that could be traced was rectangular in outline, and had been dug down from the surface after the mound was built, while the skeletons, with the exception of that of one individual folded on the side, lay extended on the back. The majority were headed southeast, but individuals heading south or east were not uncommon, and a few headed in other directions. As a rule the nearer the burial lay to the surface the better the condition of the bones, due probably to better drainage; in the deeper graves little or no trace of bone remained, the shells of the teeth lasting in some cases after everything else had disappeared. In such cases the disturbance of the ground and the burial offerings of pottery and other objects were our only guides in tracing just where the burials had been.

Artifacts.—In all one hundred and ninety-eight vessels of earthenware—pots, bowls, and bottles—came to light, about a third

of which number were perfect or nearly so, with the forty-three burials.

Some of the vessels show incised patterns, not very different in character from those found in many other parts of the country; others beautifully engraved designs, variations, for the greater part, of the scroll, often with red or white paint rubbed into the engraved lines to make them show plainer, a style of decoration characteristic of this particular region. Although some two-thirds of the vessels were found in broken condition, nearly all of them were readily restored.

Besides the vessels, twenty-seven pipes, ten of which were entire, or nearly so; many beautiful arrowpoints, some very small and fine; some half-dozen celts; some rock crystals; and a few other objects were taken from the graves. All the pipes except one, made from a limonite concretion, were of earthenware, and may be classified into two principal types, one thin and delicate, with bowl and long stem made in one piece (pl. CI, CII), the other short and more massive, intended to be



PLAN OF MOUND 2, SITE 1, OZAN

The graves penetrating the subsoil are shown in outline, as they rarely contained more than traces of bone.

used with a separate stem of wood or of cane, but usually well made (pl. CIII). A variant of the second type is a fine bird effigy (pl. CV, *b*), and there is a very massive earthen pipe, also of simple form, that does not fit into the classification (pl. CIV, *b*).

Deep Grave.—The most remarkable grave found during the entire Arkansas work was No. 20, which lay, as may be seen in the plan of the mound (pl. V), a little northeast of the center, north of the two circular "altars" and just west of the rectangular one. It was encountered first as a rectangular pillar of exceedingly hard, concrete-like material, mainly clay, standing clearly defined in the midst of the much softer mound soil, and extending from the surface down into the hardpan, 9 ft. 6 in. from north to south, and 6 ft. 5 in. from east to west. The meaning of this hard pillar was not grasped at first, but finally it was decided that it must be the upper part of a grave that penetrated deep into the clay subsoil—a theory which later proved correct. After the indurated upper portion had been cleared away, and we commenced

to follow the disturbance down into the hardpan, we found that the filling of the grave soon became very soft and so wet that a man was kept busy baling out mud and water so that the work could proceed. Finally, at a depth of 10 ft. 1 in., the bottom was reached, the solid undisturbed hardpan, upon which lay the watersoaked fragments of a skeleton heading south, about which, especially where the head had been, were grouped thirty-one earthen jars, bottles, and bowls, some of the latter very large, but all unfortunately more or less broken by the weight of the earth at so great a depth. Near the remains of the skull was found a beautful, tiny arrowpoint, and thirty more were discovered on further investigation (some of which are shown in the top row in pl. CVI), all together as if the arrows had been in a quiver or tied in a sheaf when buried. Nearby was the large, heavy, earthen pipe beforementioned (pl. CIV, *b*), very simple and quite different from the others found in the mound; and to the left of it a specially soft area with harder walls, cylindrical in form,

perhaps the cast of a long-vanished basket, in which lay four red earthen pipes, broken. A fragment of one of these earthen pipes lay near the waist of the skeleton, along with another, short-stemmed specimen of the same kind. Pieces of several pipes of the delicate, long-stemmed variety came to light in the northwest corner of the grave, and another, a red, short-stemmed one, in the southwest corner. One of the largest vessels in the grave had been smeared with thick green paint before burial, a phenomenon noted elsewhere in this mound and at other sites in the district. Frequently the green paint had been rubbed over a vessel already decorated with engraved lines filled with red pigment; hence it seems probable that the application of the green may have constituted part of the funeral ceremonies. In contrast with the grave just described, it should be noted here that the usual burial was accompanied with very few vessels, and that these were generally grouped near the spot where the head had lain; but in two cases fifteen vessels were found with one burial, both

of them, strange to say, comparatively shallow. One contained two adults and a child, all heading south—the only example of a triple burial found on this site.

MOUND 3.—The third mound of the group, a little smaller than No. 2, and about 250 ft. southeast of it, contained a modern cemetery and could not be excavated; but the fourth, on the Nanny White farm, about a quarter of a mile south, yielded some articles of interest.

MOUND 4.—This mound, about 4 ft. high, measured 74 ft. 5 in. from north to south and 59 ft. from east to west; it was composed of surface soil containing village refuse. Near the center was a grave about 4 ft. square and 6 ft. 4 in. deep, containing the badly mixed and scattered remains of a skeleton, parts of which were missing. Here and there through the lower eighteen inches was a quantity of shell beads, about 430 in all, of several different varieties (pl. CXXXVI; fig. 35), some cylindrical, some disc-shaped, some made from small univalve shells (fig. 37), while a few were pearls perforated as beads (fig. 38). Two arrow-

points also appeared with this burial. Another grave in this mound yielded an earthen bottle, and a jar containing animal bones, while the third and last contained nothing but traces of the skeleton.

MOUND 5.—Mound 5, about 300 ft. south and a little west of Mound 4, was not more than 2 ft. in height, but was quite extensive, measuring a little more than 75 ft. in diameter. The seven graves found within it yielded thirty-five vessels, about half of which were perfect; three pipes, two of them of rare type to be described later (pl. CIII, *d*; CV, *a*); a hollow, flattened, globular ornament of copper, containing rotted bits of wood, in two cemispherical parts (pl. CXXXIII, *b*, *c*); and a hopper ornament, apparently part of a head-band (pl. CXXXIII, *a*), bearing a punctate design. Besides these objects, a "boat-stone" (pl. CXXXI, *a*) and few other articles were recovered during the general digging.

The sixth mound, about 200 ft. southward and almost obliterated, contained nothing, and does not appear on our map of the site.

QUANTITY OF POTTERY FOUND.—When the mending of the broken pottery was completed, it was found that two hundred and six of the vessels from this site were whole or restorable; of these fifty were bottles, sixty-eight pots and vases, and eighty-eight bowls, and all but thirteen had some form of decoration. Of the pipes, twenty-three were intact or restorable.

CHAPTER II

Mounds on the Webb, Frank Brown, and Eb Brown Places

WEBB PLACE

ABOUT three-fourths of a mile upstream, and on the other side of North Ozan creek from Site 1, was Site 2 (see pl. 1), a productive village-site on the bluffs and knolls overlooking the creek bottoms along which it extended for about half a mile. Most of it lay within the boundaries of the Flowers farm, but the northern end, where the mounds were situated, overlapped the property of Mr Richard Webb. The work here and on the next site was conducted by Messrs Coffin and Turbyfill, both Mr Skinner and the writer being absent at the time. There were three mounds here, two of which had been so badly mangled by

plowing as to be almost unrecognizable; the third, measuring 93 ft. by 78 ft. 3 in. and 4 ft. high, was covered with bushes. Digging here revealed modern burials, so the work was abandoned.

FRANK BROWN PLACE

On Mr Frank Brown's farm, about half a mile downstream from Site 1, and on the opposite side of the creek bottoms, was found a small village-site on the hilltop, with a single mound about 62 ft. in diameter and 2 ft. high, which, when explored, yielded nothing of interest. This was called Site 3.

The writer returned to the work as this site was being finished, but Mr Coffin left and from this time until the close of the expedition, in September 1917, the excavations remained in charge of the writer, assisted only by Mr Turbyfill, and for a few months by Messrs Amos Oneroad, Boyce Hapgood, and John Webb, with such colored laborers as we could obtain, among whom Charley Wiley, the Turner brothers, Guy and Zollie, and Henry

Smith deserve special mention for faithful service and for following our wanderings.

EB BROWN PLACE

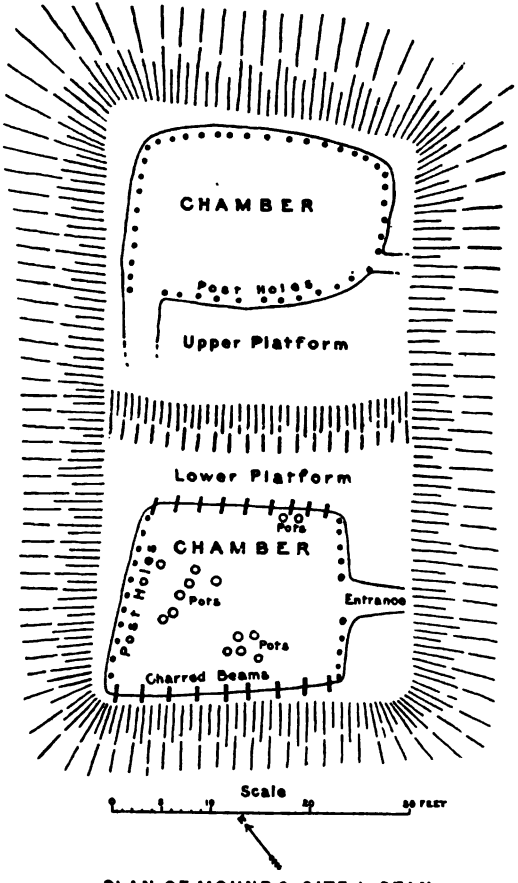
About three miles farther down the creek, on the same side as Site 3, was a group of three mounds surrounded by evidences of a small village, situated on the farm of Eb Brown (colored). This we called Site 4, Ozan, Ark.

MOUND 1.—The first of the mounds, which stood on the edge of a low bluff overlooking the creek bottoms, was about 66 ft. in diameter and 4 ft. high, and contained nothing of interest until the middle was reached, where, at a depth of 4 ft. 8 in. were found two deposits of charred human bones, approximately 2 ft. in diameter and 2 in. thick at the middle. In one were found two broken arrowpoints and some fragments of a very thin copper ornament; the other held nothing but the bones. Bits of charcoal, plain potsherds, a few arrowpoints, and some flint chips were scattered through the mound.

MOUND 2.—The second was a well-

FIG. 3.—Section of Mound 2, Site 4, Ozan

preserved, rectangular mound of the "platform" type, one of the two summit plateaus being about 30 ft. square and 8 ft. 3 in. high, while the other, of similar dimensions, reached a height of only 4 ft. When excavated the higher platform was found to contain the remains of a sunken chamber of the earth-lodge type, the floor of which had been raised about 2 ft. 6 in. above the ground level, while the lower platform contained a similar chamber, whose floor rested about on a level with the original surface (fig. 3). The higher chamber contained nothing but the fragments of two very large vessels, together with masses of burned clay and charred poles and cane from what



PLAN OF MOUND 2, SITE 4, OZAN

had been the roof of the building; but the lower, in addition to such débris, yielded fourteen pottery jars and bowls, all more or less broken, together with one broken earthen bottle, scattered as shown in the plan (pl. VI), in different places about the floor, where they had evidently been standing when the building was destroyed by fire. Of these only four bowls and two pots, besides the bottle, could be saved. That the place was probably in use at the time of the catastrophe is suggested by the fact that one of the little pots was full of charred beans. As will be seen in the plan and section, the two chambers seem to have been different in construction, for the higher was entirely encircled by post-holes, while the lower had post-holes only at the ends, the two sides showing merely the ends of heavy charred beams lying at right angles to the wall, as if the roof-beams had here rested directly on the earth walls instead of being supported by forked posts, which had been the case, apparently, with the upper chamber.

MOUND 3.—The third mound of this group, measuring 42 ft. by 47 ft., and 2 ft. high, contained nothing but a layer of charcoal, near the center, at a depth of about 15 in.

CHAPTER III

Cemeteries on the Cole Place, near Ozan

ORK on the Eb Brown place was ended June 27, and the expedition camp moved to a farm owned by Jim Cole (colored), a part of the old Frank Barrow place. Here was a large village-site, which we called Site 5, Ozan, about two miles down the creek from Site 4, on the same side. The Indian village had stood on a sandy hill, or point, extending out, with low ground on both sides, to the very banks of North Ozan creek, where it ends in a bluff containing several springs. The top and eastern side of the hill were covered with flint chips, potsherds, and now and then complete arrowpoints and other implements, plowed out of soil which in places forms a

regular black village layer, with numerous animal bones, musselshells, and burnt stones. Although no mounds were found, the presence of occasional fragments of human bones on the eastern side of the hill led us to suspect the existence of a cemetery, which we tried to locate by digging numerous testholes between the cotton rows. Several skeletons were found in this way near the bluff overlooking the creek, but these were nearly all flexed burials, which, in this part of Arkansas, at least, rarely have anything buried with them. One of the best preserved of these is shown in pl. VII.

MAIN CEMETERY.—After many days' work in testing and trenching without noteworthy results, we were about to abandon the site when the writer, testing in a spot about 225 ft. north of the place where the flexed skeletons had been found, and about 250 ft. back from the bluff, on a gentle slope, succeeded in locating a grave containing pottery vessels. This proved to be the first of a cemetery containing sixteen burials, all but one, as will be seen

FLEXED SKELETON IN SITU, SITE 5, OZAN. AN UNUSUAL POSITION FOR A CADDO BURIAL

in the plan (fig. 4), heading between east and southeast—the one exception prob-

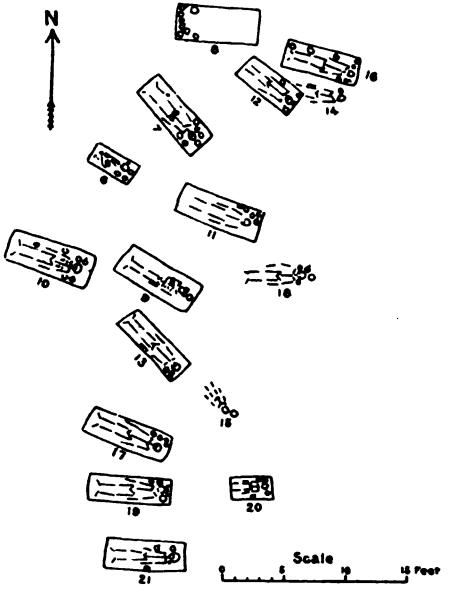


FIG. 4.—Plan of main cemetery, Site 5, Ozan

ably heading west, although the bones were missing. Depths varied from 8 in. to 3 ft.

8 in. Most of the bones were in bad condition, but enough were left to show that all ages and both sexes were represented. All the skeletons, with the exceptions of that of a child, lay in an extended position on the back, as shown in pl. VIII, which represents Burial 10.

With these sixteen burials were found sixty-four pottery vessels, thirty-three of which were perfect or nearly so, comprising bottles, bowls, and pots or jars. There were also some rings of earthenware, apparently ear-plugs (fig. 26), a few pipes of the regular short-stemmed type, and some arrowpoints and other implements of flint.

SECOND CEMETERY.—When this cemetery had been exhausted, another smaller and apparently older one was located on a projecting spur of the hill, about 175 ft west of where the first flexed skeletons were found. Six burials only came to light here, three of which headed south, and three respectively east, northeast, and north. It was difficult, however, to determine positively which way they lay, as the bones had nearly disappeared. Depths

EXTENDED SKELETON, WITH MORTUARY OFFERINGS. BURIAL 10, SITE 5, OZAN. A TYPICAL CADDO BURIAL

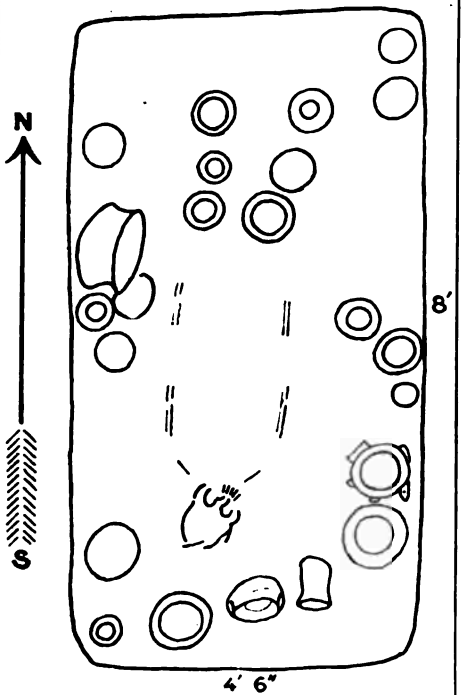


FIG. 5.—Plan of grave, showing arrangement of pottery, Burial 27, Site 5, Ozan

varied from 3 ft. 2 in. to 4 ft. 6 in., the last figures being the depth of Burial 27, which contained twenty-four pottery vessels, arranged as shown in the accompanying plan (fig. 5) but unfortunately mostly broken. In all fifty-nine vessels were found with the six burials, but of these only twelve were perfect or nearly so. But by far the most interesting find was a pair of large limestone ear-plugs, beautifully and delicately carved, with fine serrated edges (pl. CXXVIII). These will be described in detail later.

POTTERY FOUND.—The pottery found on this site is similar to that found at Site 1, but there is difference enough to lead one to believe that it may represent a somewhat later or earlier period in the history of the same people, although such differences as exist might be due to slight local variation among contemporary villages. An unusual feature of some of the pottery here was the use of conventional human faces and figures in decoration, a phenomenon not noted elsewhere in this district. Of the one hundred and twenty-three ves-

sels found here, one hundred and ten were intact or restorable, and of this number only seven are without decoration.

CHAPTER IV

Mounds on the White and Robins Places, Near Ozan

WHITE PLACE

THIS site finished, the expedition moved, on July 29, to Site 10, Ozan, Ark., on the farm of Harvey White (colored), situated on a little "branch" or stream about a mile above its junction with North Ozan creek, on the opposite side and a little below Site 1, and not far from Site 3. There is a small mound here in the midst of a cultivated field, but no signs of an Indian village in the vicinity, save a little camp refuse. The mound proved difficult to dig, being composed largely of clay loam and small stones. It measured 54 ft. 8 in. by 62 ft., the longer axis lying east and west, with a height, in its plowed-down condi-

tion, of 3 ft. 7 in. Excavation showed it to be the remains of a building of the earth-lodge type, with a hard-packed, gray clay floor, resting on the original hardpan, outlined by a row of four-inch post-poles, 6 in. to 10 in. apart, and extending 20 in. into the ground, which indicated an oblong room with rounded corners, 29 ft. 8 in. by 27 ft. 5 in., with an entrance in the middle of the western side.

That the building had been destroyed by fire was shown by the charred masses of timbers and burnt earth in the mixed soil above the floor. Subsequently the mound was used for burial purposes, for five graves were found dug down from the top and penetrating its various layers. One of these had been discovered and its contents destroyed by treasure-hunters, who had dug a shaft from the surface, but the remaining four yielded eleven vessels, three of which were entire, in general character like those found at Site 1. Only one bottle, three bowls, and one small pot could be preserved. Three of the graves headed southeast and one east, while their

depth ranged from 2 ft. 7 in. to 4 ft. 10 in. All the skeletons, of which small fragments only remained, had apparently lain extended on the back.

ROBINS PLACE

On August 9, the camp was moved to the H. E. Robins place (Site 6), about 3¼ miles north of Ozan, on the Bengen road. Here one clearly marked mound stands about one hundred yards east of Mr Robins' house, on a hill overlooking the bottoms south of North Ozan creek, with very little in the way of village refuse near. Farther eastward, however, toward the creek bottoms which trend southeastward at this point, indications became more numerous, until on the flood-plain itself we found a village-site of two or three acres, near which was another mound (Mound 2).

MOUND 1.—Mound 1 had been considerably cut down and spread out by plowing, but as nearly as could be determined it measured 70 ft. from north to south and 60 ft. from east to west, with a

height of 4 ft. 6 in. Although very few specimens were found here in proportion to the amount of work done, the results were far from uninteresting. Our digging showed that in the first place a small mound of sandy surface soil, perhaps thirty-five feet in diameter, had been raised on the yellowish clay subsoil of the hilltop; then two burials were made, both adults, extended, and headed southeast. One of them was provided with a decorated earthen bottle of archaic form (pl. LXXX, *b*), to the right of the skull, and an inverted bowl on the left shoulder, while the other had nothing, but the remains of a dog skeleton were found not far from the feet.

At a subsequent period, perhaps generations later, the top of the original mound was leveled, and a clay floor, averaging 2 in. thick, was laid down with care, over which a building of the earth-lodge type was erected, about 25 ft. inside diameter, with the entrance toward the east. The posts which supported its roof-beams were about 5 in. in diameter, and were planted about the perimeter of the floor, about

FIG. 6.—Section of Mound 1, Site 6, Ozan. (Scale 18 feet to the inch.)

20 in. deep in the soil of the original mound, some 18 in. apart. One of the post-holes had cut through the legs of the second skeleton, which shows that the original mound had probably been standing a long time before the earth-lodge was built upon it.

Finally the earth-lodge, like so many of its kind in this district, was destroyed by fire, or rather its wooden frame was burned out, letting the heavy roof of earth collapse and leaving the mound practically as we found it, that is, on top, a 2 ft. 3 in. layer of earth containing charred timbers and burned dirt, the remains of the roof, then a hard-packed clay floor, 2 in. deep, unbroken over the graves below, and finally 2 ft. 1 in.

of soil representing the original mound. All this is shown in our section, fig. 6.

MOUND 2.—Mound 2, situated, as before mentioned, on the edge of the bottoms, was 44 ft. in diameter and 5 ft. high. In the middle, at a depth of 22 in., was a circular lenticular patch of red-burned earth, probably a fireplace, about which a thin, dark layer at the same level suggested a floor, quite likely of an elevated earth-lodge, but no specimens were found.

CHAPTER V

Cemeteries on the Goodlett Site, near Ozan

FOR some time we had known of a large village-site occupying a series of low knolls along the northern side of Middle Ozan creek, three miles west of Ozan, on the farms of Messrs David Goodlett and R. L. Harmon, both of whom offered us every courtesy and convenience. This we visited on various field hunting trips, seldom returning without at least two or three hundred arrowpoints, not to speak of other specimens, and finally moved our camp there, August 24, listing the site as Site 11, Ozan, Ark. Scattered along the half-mile of the village-site's length are several black middens containing quantities of musselshells, sherds, animal bones, and the like. Arrowpoints, hammerstones, mor-

tars, and celts have been found in quantity all over the place, and along the edge of the site, back from the creek, are situated numerous mound-like knolls, which, however, on testing, showed no trace of being artificial, except their shape.

LOWLAND CEMETERY.—Weary days of digging test-holes in the village-site failed also to locate a desirable spot for excavation, until finally a small cemetery was discovered on natural knolls near the eastern end of the site, only about sixty feet from the creek bank. Here, in unusually narrow graves laboriously dug in the hard, compact clay, eleven burials were found, all extended on the back—two infants, one older child, and eight adults. Five of these were headed southeast, two northeast, two northwest, and one north, while one was doubtful, the direction in most cases being difficult to judge on account of the decayed condition of the bones. With them were found thirty-eight pottery vessels, comprising, as usual, bowls, pots, vases, and bottles, only six of which were perfect, together with a perfect earthen pipe, a

geode paint-cup, and a few arrowpoints. All the specimens resemble in a general way those found at Site 1, with the exception that two of the bowls had handles in the form of the heads and tails of birds. In addition, a fine, sharp, exquisitely chipped chalcedony knife (pl. CIX, *d*), and some fragments of a very unusual earthen bottle were found about 200 ft. east of the cemetery where the plow had thrown out a solitary burial. The graves varied in depth from 11 in. to 4 ft. 3 in., and all were uncommonly narrow, as a result, it may be supposed, of the difficulty in digging such obdurate soil with primitive tools; indeed, we found it hard enough with modern ones.

BLUFF CEMETERY.—While excavating here Mr Ed. Goodlett kindly called to our attention another burial-ground near his home, on the edge of the bluffs south of the creek, about a mile farther east, but still on the David Goodlett plantation. Here we moved on September 20. The cemetery occupied a much-eroded little promontory of the bluffs, jutting from the

plateau over the bottoms, no more than 50 ft. long and 15 ft. wide at its widest part. The soil is a stiff limy clay, full of fossil oystershells of several species, a soil which in summer splits into approximate cubes, with cracks between sometimes half an inch wide, which promptly close again on the coming of the fall rains. For years human bones and broken pottery have been washed out here as the promontory eroded further and further, and even when we arrived parts of several vessels washed from graves were seen lying about. Fifteen graves were uncovered by us here, in the bone-dry, rock-like clay, graves in which both vessels and bones were almost always found broken from the seasonal expansion and contraction of the clay. With these burials sixty-seven vessels came to light, only two of which are entire; as for the rest, while many were restorable, a large proportion were broken into such small pieces that restoration would not seem to be profitable except in the case of rare types. Still, from both cemeteries on this plantation eighty-eight

out of a possible one hundred and five have been preserved—fifteen bottles, thirty-two pots, and forty-one bowls, of which number eighty are decorated in one way or another. Besides the vessels, the graves yielded a celt, several pipes of earthenware (one of them perfect), six shell pendants, ten large shell beads, arrowpoints both large and small, highly polished pebbles used for smoothing pottery, and masses of prepared clay for making earthenware. An unusual feature in three of the graves were beds of musselshells. Nearly all the skeletons headed southeast, extended, and the deepest was 3 ft. 8 in.

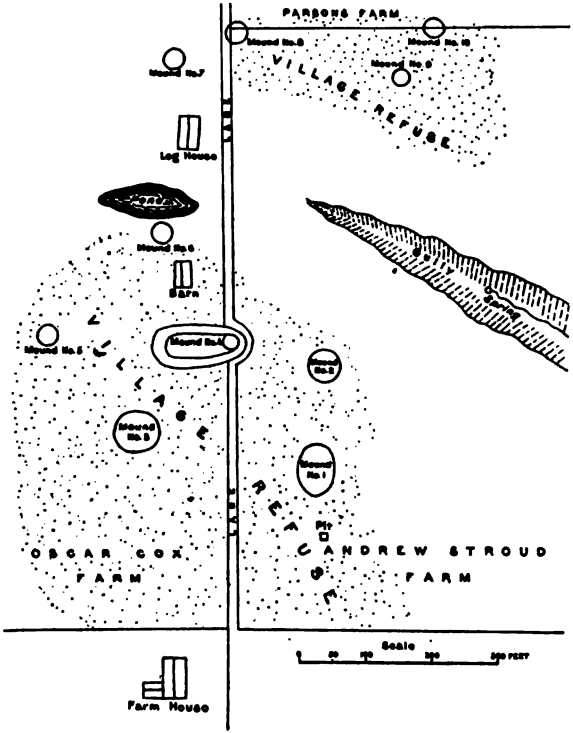
After digging here for some time we decided it wise to move, although the cemetery did not appear to be exhausted, and find a place where our work might yield us more perfect specimens. First, however, we tested a large and apparently long-populated village-site lying directly opposite this cemetery, on the other side of the creek bottoms, here half a mile wide, where it spread over several acres of low knolls at the stream's edge. Surface

material was abundant, but persistent testing failed to reveal anything of importance, except one shallow grave containing two skeletons badly shattered by the plow, and without accompaniments. The thanks of the expedition are due not only to Mr David Goodlett, the owner, but to Mr Ed. Goodlett for his hospitality and numerous kindnesses.

CHAPTER VI

Mound Group near Washington

FROM the time the expedition first arrived in Arkansas we had heard of a fine group of mounds about three miles northeast of the little town of Washington, county seat of Hempstead county (see pl. 1), and the first station on the railroad south of Ozan, so at this juncture we decided to pay them a visit. Arriving at the place we were fortunate enough to find eleven mounds, including one very large and impressive example of the platform type, the group lying in part on the farm of Mr Oscar Cox, and partly on land owned or controlled by Mr Andrew Stroud. Both gentlemen, to whom we wish to express our cordial appreciation, not only granted us permission to dig, but exerted themselves



MAP OF THE WASHINGTON SITE

in many ways to make our stay pleasant and successful.

Camp was moved to the new site on October 6, and we set up our tents prepared for a long stay. On looking over the site, which we recorded in our notes as Site 1, Washington, Ark., we found the mounds distributed along a sandy ridge underlaid by stiff clay, the dividing watershed between two small streams which joined their waters a few miles to the south. Ten of them were grouped about the head of a gully containing several good springs, within a space about 750 ft. long by 400 ft. wide, as shown on the appended map (pl. IX), while the eleventh mound lay about an eighth of a mile south of the main group, on the same ridge. Some doubt may be expressed as to whether this last was contemporaneous with the others and really part of the same group, for the village refuse, abundant about the other mounds, disappears on leaving them, and is not seen again until the immediate vicinity of the lone mound is reached.

The arrangement of the group can be

seen by the map. The description and contents of each mound will be taken up in rotation.

MOUND 1.—By a happy accident we chose the richest mound of the group in which to commence work—the most southeasterly, Mound 1—and started by cutting a trench on its southern side, extending northward. We soon found that the mound, which measured about 60 ft. by 75 ft., by 5 ft. 10 in. high, with rounded top, was composed largely of dark-gray sand, marbled or streaked with irregular layers of blackish or brownish, with occasional patches of clay, the whole resting on a bed of yellowish-gray sand, which in turn lies upon a yellowish clay subsoil spotted with red.

Burials.—We soon commenced to encounter scattered human bones at varying levels, the strange burials, in unusual positions, of which some are shown in pl. X, with few if any objects, and finally, toward the middle of the mound and from there northward, a maze of burials at all depths from the surface to 8 ft. down, many over-

BURIALS IN MOUND 1, WASHINGTON SITE, SHOWING UNUSUAL POSITIONS

The skeleton lying face-down is Burial 7; the other two, Burial 6

lapping one another, as shown in the accompanying plan (pl. XI). In many of the deeper graves the bones had entirely disappeared, and the direction of the head could only be surmised from the position of the pottery vessels in the grave; but where the bones were traceable, after the first few, they were all seen to be laid in an extended position, all on the back except one that was partly turned on the right side. In all eighty-eight burials were uncovered in this mound, of which thirty-four headed southeast, twenty east, and fourteen south, with eight northeast, five north, two southwest, two northwest, and one west.

Objects with Burials.—With these were found two hundred and twenty-three mortuary receptacles of earthenware, of which more than half are perfect, representing bottles, bowls, pots, and vases, similar to those found at Ozan, with the exception that here was a larger proportion of animal effigies. The best of these is a bowl realistically modeled in the form of a turtle (pl. XCIX, *a*), but there are also several

bottles with animal heads, a number of bowls representing fish, and last, but not least, an engraved oval bowl on legs with a projecting head at one end and a tail at the other (pl. c). What animal this was intended to represent could not be determined, but a pair of well-marked ears seems to give it credentials as a mammal, perhaps a deer, rather than as a turtle. Many of the vessels had been smeared with the same green paint noted before at Ozan. Seventeen pipes also were discovered in the graves, all of the delicate, long-stemmed variety before noted, and of these eleven are perfect, or nearly so. Celts to the number of eighteen came to light, too, large and small, embracing one of hematite and several of jasper, flint, and other hard materials; also stone earplugs, some of them once coated with copper, together with parts of copper-coated wooden earplugs, many beautiful tiny arrowpoints, parts of badly decayed shell gorgets, a dome-shaped hematite object (fig. 23), a long knife of slate-like material (pl. CXII, *a*), many pieces of crystal, and sundry lumps

of green and red paint. Many graves, of course, contained nothing of interest; others were richly provided, one for example containing twenty-two pottery vessels. As a rule, the deeper the grave the richer it proved to be, on the principle, perhaps, that the Indians would not take the trouble to dig a deep grave with their rude tools except for a person of consequence—the very one who would naturally receive a large number of mortuary offerings. The deposits in two fairly rich graves are shown in pl. XII, XIII. We must not forget, also, that only a small proportion of the articles placed in the graves have come down to us, for everything of wood, skin, basketry, and feathers, and such perishable objects, long ago turned to dust or, more accurately, in the case of the deep graves, to mud.

Purpose of the Mound.—There was no indication that this mound had been reared or used for any except mortuary purposes. The first people who buried in it, represented by the shallow graves near the southern side, and many of the shallow

graves scattered elsewhere, seem to have cared little in which direction the bodies of their dead were headed or in what posi-

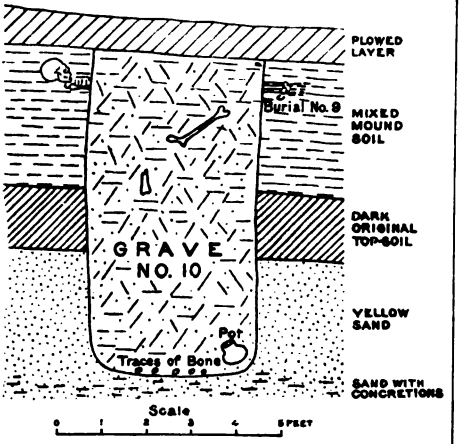


FIG. 7.—Section showing a deep grave cut through a shallow one, Mound 1, Washington site

tion they lay, nor did they bury many objects with the departed; but a later people—or shall we say the same people at a later date?—who occupied the site pre-

MORTUARY DEPOSIT OF POTTERY FOUND WITH BURIAL 25. MOUND 1. WASHINGTON SITE

MORTUARY DEPOSIT OF POTTERY FOUND WITH BURIAL 24, MOUND 1, OF THE WASHINGTON SITE

ferred to bury their dead heading south, east, or southeast, and always in an extended position on the back, and who practised the custom of depositing pottery and other objects with the remains. Such burials must have been made during a long period, for in some cases new graves had been dug through from one to three old ones, of both periods, as if the very existence of the former interments had been forgotten. When the diggers of a new grave found vessels belonging to a former burial, they often reburied them in a more or less broken state with the body they were burying, and the bones of a former interment sometimes received similar considerate treatment, but sometimes were scattered carelessly through the filling of the new grave. A section showing a deep grave cut through a shallow one is shown in fig. 7.

Mortuary Deposits.—A description of separate graves would involve too much repetition here, but before leaving the subject it might be well to record a few facts regarding the placing of the mortuary

offerings in the graves. As a rule, when vessels were few in number they were placed generally near the head (pl. XII); if more numerous, they were deposited along the sides of the grave (pl. XIII), and only in the rarest of cases were they grouped at the feet. Pipes lay most frequently about the head and arms of the skeleton, in some cases standing stem-upward, in the corners of the grave, near the head; celts seldom were found below the waist, but had no characteristic position; ear-plugs were usually in place at the sides of the head, but in one case had been carefully placed, with other belongings of the dead, in a little pile to the left of the head; arrowpoints, mainly of the tiny variety, were sometimes found in groups near the legs, pointing toward the feet, as if buried on the arrows in a quiver, sometimes in small piles, as if loose in a little bag, and sometimes were even scattered in a way that indicated that they had been imbedded in the flesh of the body when buried. A number of celts in various stages of completion, a slate knife (pl. CXII, *a*), and a lot of arrowpoint mate-

rial, constituted a deposit at the back of the head of one skeleton, while another had a large jar full of pieces of deer-antler and flint chips, among which lay two well-made, slender, flint drills (pl. CXII, *c*, *d*). A number of small, round vessels (fig. 19), filled with fine clay, were also found with skeletons. vessels which almost invariably have two holes bored through the rim as if for suspension; while vessels containing small pieces of animal bone, the relics of some prehistoric stew, were common.

Pit.—We will now take up the other mounds of the group in order, merely saying as a prelude that most of them proved disappointing. Their relative positions may be seen on the appended map (pl. IX). First, however, we will mention a squarish excavation, invisible from the surface, about 13 ft. in diameter and 4 ft. deep, filled with ashes, animal bones, potsherds, and other village refuse, and capped with a mass of hard-burned red clay—a phenomenon difficult of explanation. It lay about 45 ft. south of Mound 1. At first we believed it to be the remains of an under-

ground room, the burned clay representing a roof destroyed by fire; but that does not explain the fact that the hole was filled with refuse; while the alternate theory, that the hole was one of those from which the material for Mound 1 was derived and was afterward filled with refuse as a convenient receptacle, does not explain the mass of burned clay.

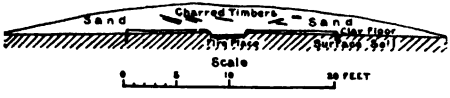


FIG. 8.—Section of Mound 2, Washington site: a typical fallen earth-lodge

MOUND 2.—Mound 2, measuring almost exactly 50 ft. in diameter and 2 ft. 10 in. high, lay about 114 ft. northward from Mound 1. This had been an earth-lodge pure and simple, with a clay floor whose edges outlined a room about 20 ft. in diameter, with a burned spot in the middle marking the fireplace. Scattered through the sandy soil of the mound were charred fragments of the roof timbers and an

occasional potsherd or arrowpoint, but no burials. The appended drawing (fig. 8), showing a section of the mound, affords an idea of its general character.

MOUND 3.—Mound 3 was one to which we had attached considerable importance, as it seemed to have the appearance of a real burial mound. Lying 234 ft. west and a little north from Mound 1, it measured about 80 ft. from east to west and 70 ft. from north to south, with a height of 6 ft. 8 in. above the original surface. This, too, proved to be a fallen earth-lodge, to which more earth had been added, without burials. The clay floor measured 33 ft. in diameter, was round in outline, and averaged about 2 in. thick. In two or three places the layers had been broken through as if for burials, but neither bones nor artifacts were found in our wide median trench and numerous test-holes.

MOUND 4.—This brings us to the great platform Mound 4, about 171 ft. northeast of Mound 3. It had been originally a steep-sided, almost rectangular structure, about 12 ft. high, with a flat top and an

extension to the eastward upon which stood a small, round mound, 25 ft. in diameter and 3 ft. high. A profile of this is shown in fig. 9. At present the southern side has been somewhat broken down by cultivation, but elsewhere it stands intact, 146 ft. long from east to west, and 81 ft. wide, with a summit plateau 104 ft. 7 in. by 45 ft. Five large test-holes, or shafts, sunk in various parts of the mound revealed a

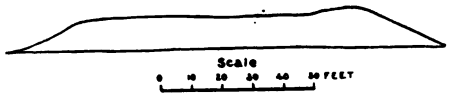


FIG. 9.—Profile of large mound (No. 4), Washington site

heavy, red-clay floor covered with burned roof material, at a depth of about 4 ft. 6 in., the mound above this being composed of a mixture of red clay, surface soil with intermixed refuse, and greenish sand. The red-clay floor continued under the little mound on the eastern end, which in turn had a higher floor of its own, about 2 ft. deep, with charred roof material, as usual, on top. It was plain that the great mound had been occupied by a large building which

may have been of the earth-lodge type, raised on a platform 7 ft. 6 in. above the level ground; but four and a half feet seems too much earth to have been simply the remains of a roof. Perhaps, as in other cases, after the destruction of this great assembly house, earth was added to make the mound still higher as a foundation for a new one, which may have been a thatched structure, now entirely vanished, that did not occupy the entire platform. In this case there would remain space for a small earth-lodge, thus accounting for the little mound on the top of the greater. No trace of burials was found, and few specimens of any kind, nothing being of interest except a small broken pot in the general digging. The bulk of the mound was built of clay and green sand from a deep hole to the north of it, now occupied by the pond shown in the chart—a hole 150 ft. long by 75 ft. wide.

MOUND 5.—Mound 5 was the nearly obliterated remains of an earth-lodge about 188 ft. northwest of Mound 3, 36 ft. in diameter and 2 ft. high.

MOUND 6.—Mound 6 stands on the south bank of the pond-hole above mentioned, about 193 ft. northward from Mound 4, and is covered with timber and well preserved, as may be seen in pl. XIV, being 6 ft. 3 in. high and only 45 ft. in diameter. This, too, had been an earth-lodge, its floor raised on a mound or platform about 3 ft. above the surrounding level. The top was of tight red clay, and the floor level distinctly marked by the charred remains of the beams that had once supported the roof.

MOUND 7.—Mound 7 was another fallen earth-lodge, of red clay, situated across the pond some 270 ft. northward from Mound 6. Forty-five feet in diameter, it was badly plowed down, retaining a height of only 2 ft. 9 in. No burials nor objects of interest were found, but the floor of the lodge, of hard-packed red clay, was still distinctly visible, and on it lay ashes and charcoal, the remains of the roof.

MOUND 8.—Mound 8, just across the farm lane, about 101 ft. eastward from Mound 7, extended partly over the property of Mr John Parsons, from whom permission

MOUND 6, WASHINGTON SITE, LOOKING NORTH
A typical small mound, undamaged by the plow

to dig was obtained without much difficulty. It was found to be about 45 ft. in diameter and 3 ft. in height, built of sand upon the original village layer, here rather thin. At about the level of the ground outside lay an almost square floor of clay, with rounded corners, upon which lay a heavy mass of charred timbers, brush, cane, and sedge grass, the remains of the roof.

Sand seems to have preserved these carbonized materials better than clay, probably because the fine particles closed around the smoldering sticks when the roof collapsed and extinguished the fire before they were completely destroyed, while the clay, being stiffer, let in more air and allowed the combustion to proceed further. Near the center of the mound a single grave, No. 89, was found, dug down from the top after the earth-lodge had burned out and collapsed, cutting through all the layers, including the floor, and penetrating the original subsoil for 3 ft. 6 in. The skeleton lay on its back at a depth of 6 ft. 6 in., headed south, extended, but with the right knee slightly raised. Near this knee lay a perfect water-

bottle, near the right forearm a perfect bowl, while the fragments of two broken vessels lay upon the right shoulder, and a third was discovered touching the back of the skull. A perfect little pot, inverted, came to light some distance farther back of the skull, and another perfect water-bottle in the southwest corner of the grave. The filling of the lower part of this grave, curiously enough, was so compact and hard that we would have thought it undisturbed, and abandoned it before reaching the deposit, had it not been for the fact that it contained lumps of charcoal—sure evidence of disturbance.

MOUND 9.—About 262 ft. eastward from Mound 8 was a barely perceptible rise of ground, Mound 9, which proved to be still another earth-lodge, this time a small one, only about 25 ft. across, the room inside covering a squarish area about 16 ft. in diameter; but there was no clay floor. The fireplace was clearly traceable on the western side of the room; near it, to the south and west, were two broken pots and a fine and nearly perfect bottle, arranged as

shown in fig. 10. Elsewhere on the floor level were discovered a celt and a small

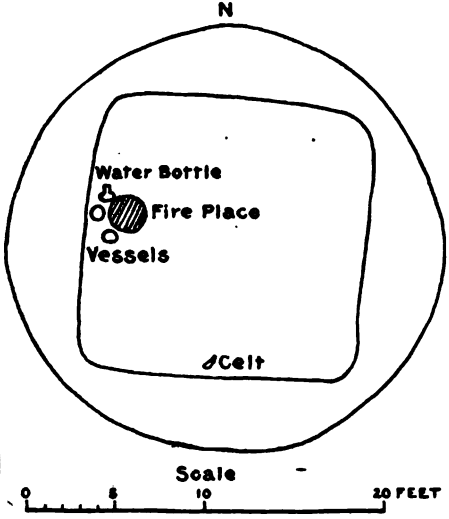


FIG. 10.—Ground-plan of Mound 9, a fallen earth-lodge, Washington site

jasper chisel. Some sections of the roof were very well preserved, although, of course, completely carbonized, and showed

the construction plainly, as the appended drawing (fig. 11) indicates. The largest poles, of pine, measured 5 in. to 6 in. in diameter, and extended north and south

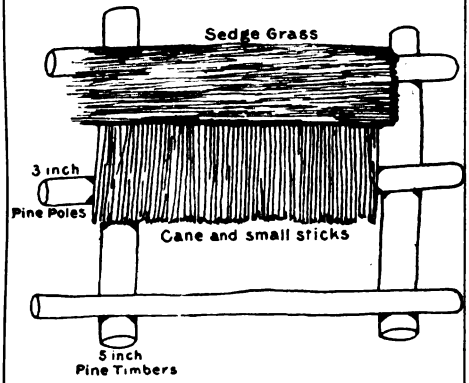


FIG. 11.—Sketch showing structure of earth-lodge roof, Mound 9, Washington site

about 18 in. apart; upon these lay smaller pine poles at right angles, about 3 in. to 4 in. in diameter, and 10 in. to 12 in. apart. Then, at right angles to these again, came small sticks and cane, topped with coarse sedge

grass, and the whole covered with earth, now only 8 in. to 10 in. deep.

MOUND 10.—Mound 10, the most northeasterly of the group, lay partly on the Stroud and partly on the Parsons farm, about 84 ft. northeastwardly from Mound 9. It, too, had been an earth-lodge, now about 40 ft. in diameter and 18 in. high, with a well-made, hard clay floor marking out the form of a square room some 17 ft. in diameter, the circular fireplace in this instance being not far from the center. A few pieces of charred roof timbers were seen above the floor, but not so many as usual.

In the west and northwest portions of the mound a number of graves were found, mostly outside the edge of the floor, yet evidently made after the lodge had fallen, for two of them cut through it fairly. Eight burials in all were found, mostly in bad condition, all extended on the back, and all heading from south-southeast to south, with one exception, which headed southwest. Depths ranged from 2 ft. 6 in. to 3 ft. 2 in. With them appeared forty-one pottery vessels, more than two-thirds of

which were unfortunately broken. Two ordinary broken pipes, another of odd form, nearly perfect, a shell bead, an alligator tooth, and some green and red paint, complete the list of objects. The material found is similar to that observed in the other mounds of this group, and at Ozan, except the pipe, which, though a variation of the regular short-stemmed type, is unique in detail (pl. CIV, *d*).

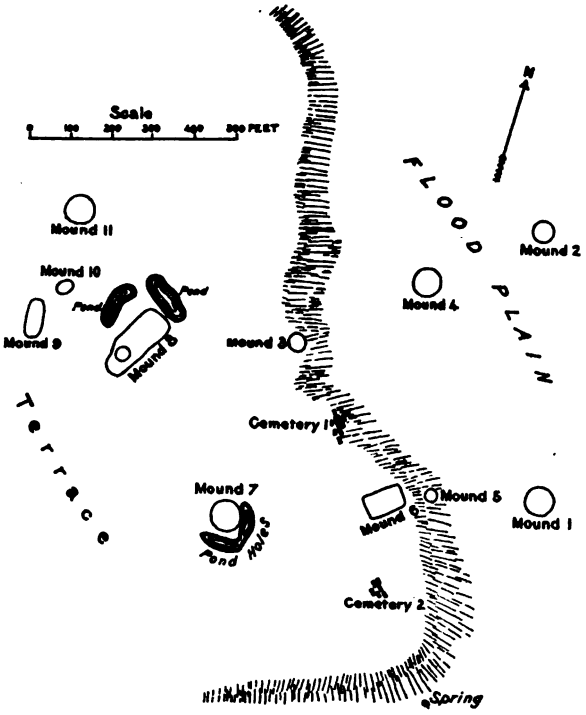
MOUND 11.—Mound 11, far to the south of the main group, and not shown on our map, was merely a typical burned-out earth-lodge of rather large size, whose clay floor rested on the grayish sand of the ridge. Upon the floor lay a mass, 6 in. to 8 in. deep, of charred timbers, brush, cane, grass. and other roof material, covering an area some 16 ft. in diameter. Above this in the middle was 3 ft. 6 in. of red clay, making the mound a little more than 4 ft. high above the original surface. Its diameter was 52 ft. About fifty yards to the southeast was the hole from which the material for the mound had been dug, and a few potsherds and flint chips could be picked up in the vicinity, but

excavation revealed no burials, nor anything else of interest.

CONCLUSIONS.—Viewing the results of the work in this group as a whole, the following conclusions seem evident: that the group was originally a village, consisting in part, at least, of earth-lodges, among which stood a large ceremonial house raised upon a mound, and also a mound constructed for burial purposes. That there were dwellings other than earth-lodges seems probable from the amount and distribution of the village refuse, and the fragments of burned wattle-and-daub walls, and that the occupancy continued through many years may be inferred from the superimposing of burials in Mound 1, and the fact that in Mounds 8 and 10 burials had been made in the tumuli resulting from the collapse of old earth-lodges. Perhaps the site was a ceremonial one, with only a small permanent population, but serving as a camping-ground for numerous families gathered from many miles around to take part in the great ceremonies held in the large ceremonial house on the largest mound. If this was

the case, the earth-lodges might not have been private dwellings at all, but the meeting places of certain societies, or the repositories of sacred objects belonging to such societies or to the different clans.

As may be imagined, we left the site with regret, for it was the richest and most interesting we had encountered up to that time; and it may be said that to the time of the present writing, we have still to find its equal in Arkansas, for it yielded two hundred and forty-four whole and restorable pottery vessels, of which all but thirteen are decorated, and which comprise seventy-nine bottles, eighty-seven pots and vases, and seventy-eight bowls, besides the pipes, fine arrowpoints, and other artifacts.



MAP OF MINERAL SPRINGS SITE

CHAPTER VII

Mound Group at Mineral Springs

WHILE working near Ozan we had heard frequent accounts of another large mound group near Mineral Springs, in Howard county, some ten or twelve miles westward; so when the work drew to a close at Washington, we moved to Mineral Springs, where we arrived February 17, 1917, and set up camp on the farm of Mr Manning S. Jones, owner of the group. These mounds, the arrangement of which is shown in pl. xv, are situated partly on the higher terrace and partly on the lower one, on the north side of Mine creek, about half a mile east of Mineral Springs village.

Mr Jones has a very good private collection, gathered mostly from his own farm, so it is especially to his credit that he granted

us full permission to dig, and made us welcome in every possible way. Many collectors would have resented the idea of an expedition working on their land and carrying away specimens they would have liked to possess.

MOUND 1.—One mound in particular was pointed out by Mr Jones as having yielded several articles in plowing, including a large and beautifully made flint knife which is still in his possession, also human bones when he dug a test-hole on the spot where the knife was found. Situated on the lower terrace, within a stone's throw of the bottoms, this mound was the most southeasterly of the group—a good augury, we thought, judging from the results in Mound 1 at Washington, itself the farthest southeast among its fellows.

Nearly round, and some 70 ft. in diameter, the tumulus, which we called Mound 1, measured 5 ft. 10 in. in height. The top was covered with an irregular cap of extra hard red clay, about 12 ft. in diameter and 20 in. deep, beneath which lay a heterogeneous and in some places very hard mix-

ture of black village soil with refuse, reddish soil with more or less clay, pure red clay, and gravel, all obtained from various points in the vicinity. It is said that east of the mound were formerly ditch-like excavations, now filled in by the plow, from which much of the material probably came.

Thirteen graves were found in the mound, all on the southern side, burials which differed in several particulars from those usually met about Ozan and Washington. In the first instance, the ancient people here apparently cared little which way their bodies headed when buried. One grave, for instance, contained five skeletons, heading in three directions; another two, both heading a little south of east, while of the eleven remaining graves, three had so nearly disappeared that their direction could not be determined; the others were directed as follows: two northwest, two southwest, two southeast, two approximately south. All lay at depths 6 in. to 4 ft. 4 in. In all the thirteen graves only five pottery vessels were found, two of them perfect (one of these is shown in pl. XLVIII, *a*); but five long

flint knife or spear blades (pl. CX; CXI, *b*, *e*), twelve celts, a lot of unfinished celts, twenty-two fine, tiny arrowpoints, fragments of

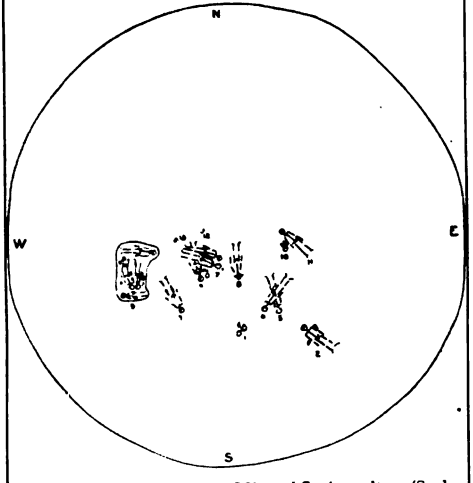


FIG. 12.—Plan of Mound 1, Mineral Springs site. (Scale, 27 ft. to the inch)

wooden ear-plugs with copper bosses, part of a copper cylinder containing wood, a pair of triangular copper ear-pendants with embossed decoration (pl. CXXXIV), some

black paint, and many shell beads, these last too soft to save, were found. One of the long flint blades with a deeply indented base was unique in that the barbs on each side were themselves notched (pl. cx, *b*). The bones as a rule were in very bad condition, in many instances being barely traceable.

This mound shows no signs of having been or of having supported an earth-lodge, but it seemed from its construction to have been built on an older but much smaller mound, in fact, only 20 in. high, a section of which was plainly visible in our trench. By all odds it furnished the most difficult digging we had experienced up to that time. The arrangement of graves may be seen in the accompanying plan (fig. 12).

MOUND 2.—Mound 2 was examined next—a very low round one, about 650 ft. northwestward from Mound 1. It was barely discernible, being only 18 in. high at the middle, although fully 55 ft. in diameter; hence it is not strange that from a distance it was visible only as a round, yellowish spot in the darker soil of the large cotton-field.

It lay on the same terrace as Mound 1, the one next above the bottoms, and considerably lower than most of the group. At first we were not sure that it was really a mound, but test-holes soon showed that the soil conditions below the surface were decidedly abnormal, large gravel being found in one spot that did not occur elsewhere in the field. But there was still doubt about the artificial nature of this phenomenon until a fine celt appeared in the same gravel. Then the whole force was called to the spot, and work commenced in earnest, with the result that a disturbance was traced out, 8 ft. 6 in. wide and 9 ft. 10 in. long, nearly rectangular but with slightly rounded corners, the longer axis extending north-northeast and south-southwest. It was then certain that we had located an enormous grave, although nothing further appeared until the depth of 6 ft. 10 in. was reached, near the southern end of the disturbance, when four broken earthen bowls with unusually fine incised decoration were encountered (one of which is shown in pl. XXVIII, *b*). This was Burial

20. At 8 ft. 6 in. bottom was reached at last, but no bones—merely the molds where bones had been, which indicated that the skeleton had headed south-southwest. The gravel which had first attracted our attention in the testing came from this level. On the western side of the grave a deposit was encountered, consisting of three lumps of white paint, a little green paint, some red paint, and a very unusual scraper made from a large flake (pl. CXII, *b*), a broken bowl with very fine, carefully drawn scroll decoration (pl. XXVIII, *a*), containing purple paint, together with a fine, triangular spear- or knife-blade (pl. CXI, *d*). These rested on the gravelly bottom of the grave, at the level of ground-water, while a few inches above was a nicely decorated but broken cylindrical vase (pl. LXX, *a*). In the northeast corner lay three pottery vessels, one of them perfect (pl. XLVIII, *b*), the others more or less broken, one resting on a bed of prepared clay for pottery making, in the northern edge of which lay fifty-two beautiful, tiny arrowpoints together and all pointing east, as if a quiver or a sheaf of arrows had

been buried there. At the head of the grave were found a nice flint blade (pl. CXI, *a*), a celt, and a broken vessel, while in the southeast corner appeared one of the most remarkable objects found by the expedition —a realistically carved parrot-head of wood (fig. 32), covered with scales of hammered copper, enclosed with a little white paint in the remains of a small palmetto basket of diagonal weave (fig. 33), the whole preserved by the copper salts. The light copper scales on the parrot-head were so oxydized that they soon crumbled away, but the wooden part fortunately was firm enough to preserve. The second grave in this mound, No. 21, was a shallow one, only 2 ft. 8 in. deep, and contained the remains of a woman heading southeast, extended on the back. Above and to the right lay the remains of an infant skeleton, and back of the head a fine but plain water-bottle. Near the right hip a broken pot with ornate "herring-bone" decoration appeared, while near the left hip was a large arrowpoint, pointing toward the feet. At the infant's neck was a badly decayed shell bead. The

third grave, No. 22, was the largest and with one exception the deepest found by the expedition, measuring 11 ft. 7 in. by 10 ft. 5 in., with a depth 9 ft. 5 in. which extended below the level of ground-water. The longer axis was east-southeast and west-northwest. No bones were found, but marks and casts in the ground showed the former presence of two skeletons, the easternmost heading southerly and the other northerly. On the very bottom were encountered sixty-five fine tiny arrowpoints, a slender long spearpoint or knife (pl. CXI, *c*), which when found was spotted with green paint or copper salts, several tiny long-stemmed pipes (pl. CII, *a*), and a number of pipe fragments, which last lay about 18 in. above the bottom, near the two ends. The arrangement of objects in the grave may be seen in the accompanying plan of the mound (fig. 13). The fourth and last burial, No. 23, was quite different from any of the others, for it consisted of an oval hole 4 ft. 3 in. long by 3 ft wide, its longer diameter being northwest-southeast, with a depth of 3 ft. 7 in., and containing the

calcined remains of three cremated skeletons—burnt bones and ashes only—among which appeared a few tiny arrowpoints more or less cracked by fire. The remainder

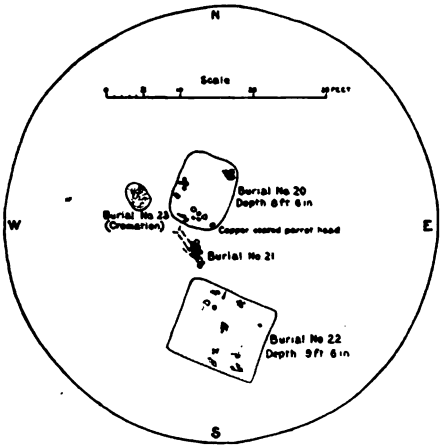


FIG. 13.—Plan of Mound 2, Mineral Springs site

of the mound was carefully dug out, but without further results. These were the last burials found in mounds on this site, although two small cemeteries not connected

with mounds were found. These will be described later. Before doing this, however, we will view the other mounds in the group and describe their characteristics. Their respective locations will be seen in the appended map (pl. xv).

MOUND 3.—Mound 3, situated on the upper terrace, had been an earth-lodge about 50 ft. in diameter, the frame of which had been destroyed by fire, and had a hard clay floor at the original ground level. The clay of the roof had been burned very hard, indeed it was almost vitrified in places. Persistent tests here failed to locate burials, although Mr Jones reported having plowed out vessels in times past. No objects of importance were found, but the nest of a mud-dauber wasp, baked to the consistency of pottery, lay on the floor of the earth-lodge, where it had fallen when the roof burned.

MOUND 4.—Mound 4, on the lower terrace, was round, apparently once a large earth-lodge, or the foundation of a building of some other kind, and measured 75 ft. in diameter and 7 ft. high. It was composed

of a compact mass of solid red clay, without break or disturbance that test-holes could reveal. Thorough trenching might have revealed specimens, but the digging was so extremely difficult that, considering our small force, we considered it best to abandon the work as unprofitable.

MOUND 5.—Mound 5 was a fallen earth-lodge with a clay roof, about 40 ft. in diameter and 18 in. high, situated on the slope just below the upper terrace. Mr Jones had plowed out an earthen vessel here, but extended tests failed to reveal burials.

MOUND 6.—Mound 6, just west of the last, is a rectangular red-clay mound of the "town-house" or platform type, whose base is 90 ft. long and 68 ft. wide, the summit platform being 50 ft. by 38 ft., about 6 ft. above the surrounding ground. No digging was done here, as the summit is occupied by a modern cemetery.

MOUND 7.—Mound 7, on the upper terrace, is a round mound 80 ft. in diameter at the bottom, with a summit plateau 25 ft. in diameter, about 8 ft. above level ground, from which it could be approached by a

comparatively gentle slope from the north and west. To the south and east lay moat-like excavations, about 6 ft. deep, which furnished the earth of which the mound was built. Excavation showed that this had been an earth-lodge on a platform, with a stiff clay roof and floor, but soft earth walls. No burials were found, and no specimens other than occasional scattered potsherds.

MOUND 8.—Mound 8 is one of the most imposing monuments of its kind in the region, and is still covered with heavy timber, for its steep sides, large size, and the holes about it from which the material for its construction were taken, make it next to impossible for tillage. Rectangular in form, its total length of base from northeast to southwest is about 173 ft., its basal width 85 ft., while the summit plateau measures 50 ft. by 143 ft. 6 in. Upon this platform, near its western end, is a round mound 40 ft. in diameter and 6 ft. high, which, with the 8 ft. of the main mound, makes the highest point 14 ft. above the surrounding level ground, which lies to the

east and south of the earthwork. To the west and north are a large depression and two pond-holes from which earth for this mound and probably some of the others was taken. On this side the total height reaches 20 ft. The round mound could not be excavated on account of modern burials, but many test-holes were sunk in the platform, which showed that there had been a long structure covering nearly the entire top northeast of the little mound, but whether this had contained one or several chambers, or had an earth or thatched roof, could not be determined. No trace of burials or of objects of importance was found, so little intensive digging was done, but southwest of the little mound quite a lot of potsherds, animal bones, and other refuse came to light in the test-holes.

MOUND 9.—Mound 9 was one of the westernmost of the group, a long, low structure 84 ft. long from north to south and 54 ft. wide, which, on excavation, proved to be the remains of a two-chambered earth-lodge, each chamber, oblong in form, measuring about 12 ft. by 20 ft. The

walls of the chambers were of clay, and were clearly marked, but the roofs had been of soft surface soil, and on their collapse had filled the chambers with a mass of earth containing many charred fragments of the supporting timbers. No burials were found.

MOUND 10.—Mound 10 was a low, fallen earth-lodge with a clay roof, which in its present plowed-down condition measures about 2 ft. high, 50 ft. wide, and 60 ft. long from northeast to southwest. No burials nor specimens of importance were discovered.

MOUND 11.—Mound 11 was round, about 7 ft. high and 75 ft. in diameter, and was composed of mixed earth with a heavy burned layer on top. It seems to have been a platform for a building, but plowing has torn away so much of the indications of the lodge that this cannot be certain. Extended trenching revealed nothing but a few potsherds, etc., although the major portion of a vessel was once plowed out here. To the north of this mound several slight elevations rising from the flat plowed field, characterized by a different color in

the soil, conveyed the impression that small mounds of the earth-lodge type had once stood there, but they had been so plowed down that their dimensions and exact location can no longer be determined. In all probability the group, including these, had originally consisted of thirteen or fourteen mounds.

FIRST CEMETERY.—The indications that led to the finding of the first of the cemeteries were discovered by Guy Turner, the colored cook, who, as he was looking over Mr Jones' peach orchard one day in search of arrowpoints, between meals, found a nearly perfect earthen bowl on the surface where it had been partly plowed and partly washed out of a grave in a little hollow between Mounds 3 and 6, as shown on the map. Although the writer doubted that a cemetery could be found in a hollow, for in his experience such had always been situated on knolls, or at least on level ground, the spot was tested. The grave to which the bowl had belonged was nearly washed away, but another was located within a few minutes, just south of the first, containing

six skeletons (Burial 14) heading southeast. This grave measured 7 ft. by 10 ft., but was only 14 in. in maximum depth, while some portions had been torn by the plow. The objects found include a fine pair of stone ear-plugs that once had been coated with copper, a celt, and eleven pottery vessels, these last all more or less broken, as were two long-stemmed pipes. Five more graves were found in this little cemetery, from near the bottom of the hollow up the slope to the edge of the upper terrace. One contained four adult skeletons, heading north, with one small, broken, long-stemmed pipe; another, two adult skeletons, heading southeast, with three pots, two bowls, and a water-bottle, all more or less plow-torn; another grave with two adults, heading southeast, yielded nothing but a broken bowl; another, a skeleton, heading south by east, accompanied by a pot with handles, and a water-bottle; and finally, the last grave revealed the bones of an old man, headed east, near whose right shoulder was found a very small bowled pipe, 10 in. long, lying with its stem toward the east (pl. CII, *e*).

SECOND CEMETERY.—The second cemetery was located by the number of pottery and pipe fragments that had been plowed up on the flat terrace between the mound group and the bluff overlooking Mine creek. Here five single skeletons were found, four adults and one child, and indications of the former presence of several more, now plowed out, all heading from south to southeast, and none more than 2 ft. 4 in. deep. With them appeared a few ordinary pottery vessels, a fine long-stemmed pipe, a few arrowpoints, and an arrowshaft smoother. It was very plain that the persons buried in these level-ground cemeteries had not received the consideration accorded to those buried in the mounds, but they seem to have belonged to the same people, so far as we can tell from the pottery, pipes, and arrowpoints. Perhaps they were commoners, while those buried in the mounds were from the upper class—for class distinctions seem to have existed among the Caddo, as will be shown later.

This excavation completed our work at Mineral Springs, for, although there were

other sites within a few miles, and other mounds in the district, it was deemed best to make a radical move in the hope of finding a different culture.

CONCLUSIONS.—There can be little doubt that the site just described represented a large village containing a number of buildings of several types, some of them earth-lodges, and some of them, at least, ceremonial—a village similar to that at Washington, Ark., before described, but evidently not inhabited so long. The character of the pottery is similar in the two places, but it was much more abundant at Washington, while at Mineral Springs were recovered a number of long flint blades and articles of copper that were apparently unknown at the former site. Clearly there was some difference between the occupants, but whether it was a difference in time or merely a difference in customs between two contemporary villages, we were unable to determine. Only thirty-two vessels from this site were whole or restorable; of these five were plain. They

comprised four bottles, fifteen pots, and thirteen bowls.

Sites near Mena

On concluding our work at Mineral Springs we decided to visit the vicinity of Mena, Ark., the situation of which, in the heart of the Ozark mountains near the headwaters of Ouachita and Little rivers, we considered favorable. In this, however, we were somewhat disappointed, as we were able to locate only small camp-sites in the immediate vicinity of Mena, while to the west, on the headwaters of Little river, the only archeological remains reported were stone cairns containing little of interest. Beginning on the Ouachita river, however, about twenty miles east of Mena, and from that point still farther eastward, downstream, we received numerous reports of mounds, some of which had yielded pottery vessels and other relics to local curio-seekers. Many of the mounds visited, however, seemed to be mere fallen earth-lodges.

CHAPTER VIII

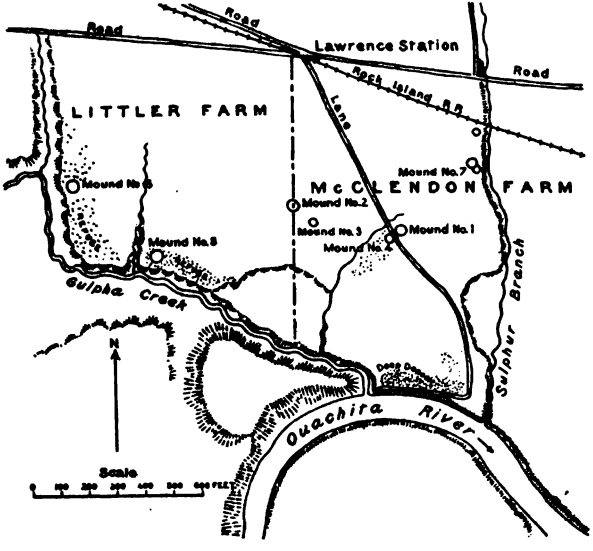
Site at Lawrence, near Hot Springs

BEFORE commencing work in this district it was considered best to reconnoiter the country a little farther down the river in the vicinity of Hot Springs, in the hope of finding still better indications, and this time we were not disappointed, for we heard so many reports of mounds and saw so many fine objects in the hands of local collectors, that we decided to move the outfit to Hot Springs at once. We arrived early in May 1917, and established camp near the junction of Gulpha creek and Ouachita river, near Lawrence Station, some six miles southeast of Hot Springs. Here is situated a very large ancient village-site and a number of small mounds, partly on the property of Dr J. W. McClendon, at that time mayor

of Hot Springs, and partly on the farm of Mr Littler, adjoining on the west. Both owners very kindly gave us full permission to excavate, and the writer takes this opportunity to thank them in behalf of the Museum.

The site, a sketch-map of which may be seen in pl. XVI, includes the land along the north side of the river between Gulpha creek and Sulphur branch, and northward nearly to the railroad, but excluding certain swampy tracts and the Gulpha creek bottoms—an area exceeding a quarter of a mile broad by three-quarters of a mile long, within which there is scarcely a knoll or a bit of habitable ground that does not show numerous signs of former Indian occupancy, not to speak of the mounds before mentioned. We called it Site 1, Hot Springs, Ark.

TWO CULTURES.—The objects found, however, are by no means uniform, and seem to point to two different cultures: one, connected with the mounds, seems to be similar to that found around Ozan, Washington, and Mineral Springs (albeit ruder



SKETCH MAP OF SITE 1. HOT SPRINGS

and differing somewhat in detail), and is characterized by tiny arrowpoints of very fine workmanship, larger lozenge-shaped points, pottery with engraved decoration more or less of the "Red River" type, but not so well made, and flat, side-notched net-sinkers. The other culture seems older and less individual in character, and is marked by an entire absence of pottery, a great variety of forms of projectile points, except the tiny and lozenge-shape varieties, which are absent, and grooved instead of notched net-sinkers. Mortars, hammer-stones, and celts seem about the same for both cultures.

Deep Deposit.—The evidences of the older culture were found directly on the banks of the Ouachita in an extraordinary deep refuse-heap which is unique in the writer's experience. The river here makes a great bend northward, so that Gulpha creek flows into it almost from the west, but directly in front of the site the river turns eastward again. At this point, from the creek mouth downstream to the mouth of Sulphur branch, the river-bank on the

north side is surmounted by a series of low alluvial knolls, all of which are covered with flint chips and other "Indian signs," but most of all the one nearest the creek mouth, which is largely composed of aboriginal refuse. This knoll is roughly oval and flat-topped, measuring 265 ft. along the river-bank and running 90 ft. inland, where it slopes to a small swamp covered with second-growth timber. We dug several large test-holes in different parts of this knoll, one 10 ft. by 10 ft., one 6 ft. by 10 ft., one 6 ft. by 6 ft., one 5 ft. by 5 ft., which revealed the interesting fact that flint chips, broken rejects and blades, with scattering charcoal and occasional whole points, blades, rejects, etc., extended down to a level 8 ft. to 8 ft. 9 in. below the present surface, deeper toward the western end, and one fine large point (pl. CXIV, *b*) was found 9 ft. 9 in. down. No distinct layers were visible in most of the holes, but the earth was lighter in color for a foot or more above the bottom—a yellowish, compact, sandy soil. The bulk of the deposit was grayish to blackish sandy loam. The

arrangement of the different colors of soil in one of the test-holes is shown in fig. 14.

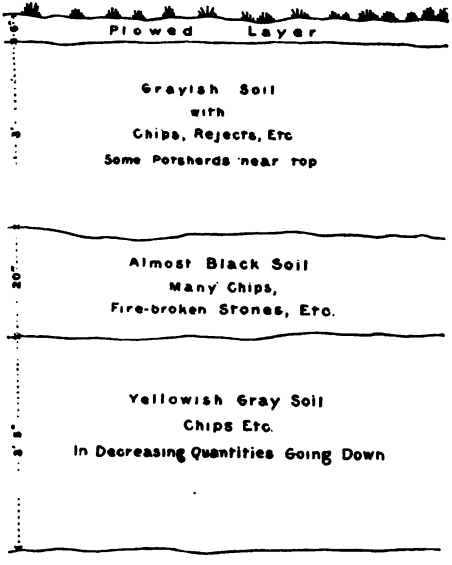


FIG. 14.—Section of deep deposit, Site 1, Hot Springs

Flint chips, rejects, etc., although scattered through the whole mass, were thicker in

patches. As a rule they were of various colors, but in the test-holes near the river-bank most of the chips and points found in the lowermost three feet were of black or at least dark flint. Most of the points were stemmed or side-notched, and there were no tiny points, lozenge-shaped points, or pottery below the depth of one foot, and very few flat, notched net-sinkers, most of the latter being thick and grooved. No burials were found, but a fireplace was uncovered in one of the test-holes at a depth of 6 ft. 8 in., a round deposit 2 ft. 3 in. in diameter and about a foot thick, containing charcoal, ashes, lumps of burned earth, and a few small burned animal bones.

Interpretation.—The vast number of chips, rejects, and broken blades in this great deposit made it appear more like a workshop than a village-site, and this, taken together with the fact that the soil appeared to be alluvial, laid down from time to time by spring freshets, leads the writer to the following theory to account for the phenomena observed: That the Indians from early times came to the mouth

of Gulpha creek in canoes from their homes far down the river; that they left the canoes there while they went afoot up the creek to the flint quarries reported near its head-waters in the mountains; that they returned to the creek mouth with their rough pieces of flint, and camped there while chipping them into easily portable blank blades to carry home for future elaboration—then loaded these blades into their canoes and departed, leaving chips and other refuse which was covered with alluvium by the next freshet. This process, if our theory is correct, must have extended over a long period of time to have covered so large an area, to the depth of eight or nine feet, with chips, etc., scattered through from top to bottom, especially when it is considered that the river-bank at this point is more than thirty feet above mean low water and is rarely submerged. Finally, the Indians who constructed the mounds and the earth-lodges now represented by low mounds, appeared, and left their characteristic tiny arrowpoints (pl. CXIV, *a*, *c*), lozenge-shaped

points, and pottery, in the very top of the deposit.

MOUND 1.—The first of the mounds lay in the woods about 200 yards north of the Ouachita and 150 yards west of Sulphur branch; it was a circular structure, 47 ft. in diameter and 2 ft. 8 in. high. Composed of mixed clayey and loamy soil, it seemed to be the remains of a fallen earth-lodge, for, although the floor was not well marked, large pieces of charcoal, evidently the remains of roof-timbers, came to light, and the top was slightly hollowed as if from the collapse of the roof. Later experience in this district taught us that when an earth-lodge was destroyed by fire, the result is a rounded or flat-topped mound, or, in any event, one but slightly hollowed at the top; while the earth-lodges that have rotted down are represented today by mounds so hollow at the top that they appear more like rings of earth, the reason being that in the latter case the earth had mostly washed from the roof before the timbers finally fell, leaving little to fill the middle of the mound; while in the first case, the

earth roof was intact when the timbers burned out beneath it, and in falling completely filled the cavity where the dwelling had been. A trench and several test-holes in this mound revealed many potsherds, both plain and decorated, arrowpoints for the greater part of the tiny variety, a fine celt, several unfinished celts, and some good pottery smoothers; but only one burial, which lay near the eastern edge of the mound—a badly decayed skeleton, heading northeast, with fragments of a pottery vessel in very poor condition near the left shoulder, all at a depth of 2 ft.

MOUND 2.—Mound 2 lay somewhat lower, but about the same distance from the river as Mound 1, though farther west, as will be seen in the sketch map (pl. XVI). Much plowed down, it was still plainly circular, 35 ft. in diameter and about 2 ft. above the surrounding surface; it was composed of mixed loamy soil. A thin burned layer at the level of the original surface and about 10 ft. in diameter seemed to indicate that it too had once been an earth-lodge. Seven graves were found in the eastern edge of it,

outside the limits of the floor, one of which contained two skeletons. Three of the burials headed southwest, three west-southwest, and one almost directly west. With them were found several pottery vessels, mainly very crude bowls, but including one fine water-bottle, two celts, and a little red paint, mainly at the feet of the skeletons. The deepest was 3 ft. 10 in., but the average depth was about 2 ft.

MOUND 3.—About 100 ft. eastward were the remains of Mound 3, almost obliterated by the plow, which contained traces of three burials. One of them, an infant, headed southwest, had one shell bead near where the neck had been; another, of which traces of the skull only were found, had been headed northeast, while the third grave, traced only by the disturbed soil, extended northwest-southeast, and yielded two good celts from the northwestern end. The deepest grave was 2 ft. 3 in. down.

MOUND 4.—Mound 4, lying just south of Mound 1, had been cut through by the road, so that a small portion only was left, but it had apparently once been a

typical circular mound of the fallen earth-lodge type. In its southern edge was found a disturbance resembling a grave, extending northeast-southwest, 6 ft. 6 in. long, 2 ft. wide, and 3 ft. 6 in. deep, but without trace of bone. On the bottom lay a single tiny arrowpoint. While most of the knolls within the limits of the site showed abundant signs of Indian occupancy, the spot where these were thickest, next to the deep deposit before mentioned, was on a series of elevations along the bank of Gulpha creek, on the Littler farm.

MOUND 5.—One of these, comprising about an acre and a half, was covered 1 ft. to 3 ft. 6 in. deep with densely black village refuse, and showed the nearly obliterated traces of a mound on its western end, nearly half a mile above the mouth of the stream. In its plowed-down condition it measured 45 ft. in diameter and 8 in. high, resting on a village layer here 20 in. deep. It may have been a fallen earth-lodge, but if so, nothing was left to show that such had been the case. The village layer was full of chips, musselshells, potsherds, and

animal bones, while tiny arrowpoints, lozenge-shaped points, and flat, notched net-sinkers were common, all of which are apparently connected with the mound culture (Caddoan) in this district. Excavation revealed eight burials in this mound, of which six lay between the center and the western edge, and two in the eastern edge. Depths ranged from 1 ft. 2 in. to 2 ft. 10 in., the deeper graves being unusually narrow, and the bones cramped as if the bodies had been forced into their last resting place. Four of the eight skeletons headed north, and two south, while one was a badly mixed "bone burial" interred after the flesh had left the bones, while the direction of the last could not be determined, as only stains were left. This, however, was accompanied with part of an earthen pot; another had two shell beads back of the head and traces of copper near the neck, and a third, a bowl back of the head and a chipped piece of crystal at the right knee; two more had a few arrowpoints each, and the rest no mortuary offerings at all.

Just south of Mound 5 a slight elevation seemed to indicate the former presence of another small mound. This contained the remains of a small child, headed west, at a depth of 2 ft. 5 in. At the neck and extending down the right arm was a string of shell beads, mostly small and of disc form, but containing, in the part which hung in front, several large disc and cylindrical beads (fig. 39). Another skeleton, that of a woman, lay near Mound 5, but had no objects of interest; while at the other end of the knoll a single skeleton was located by test-holes, apparently also that of a woman, heading northeast, at a depth of 2 ft. 2 in., but without objects of any kind.

MOUND 6.—On a ridge northwest of Mound 5, across a little branch and on the edge of the creek bottoms, as shown in the map, was Mound 6, much torn by the plow, but still 50 ft. in diameter and 20 in. high. It was made of "village dirt," which covers the ridge here to the depth of 18 in. Seven burials were found here, two of which were of children. Three headed north, one north-northeast, one northeast, one north-

west, and one south, the deepest being 4 ft. 10 in. below the surface. One had a fine bone awl or pin back of the skull (pl. CXXXV, *d*), but the other graves yielded nothing of interest. As usual in this district, most of the bones were in very poor condition and could not be saved. These were all reburied.

MOUND 7.—Mound 7 was a fallen earth-lodge of circular form, about 45 ft. in diameter, situated in the woods northeast of Mound 1, as may be seen in the map, on the edge of the bluff overlooking Sulphur branch. The center is sunken, but the surrounding walls are still about 2 ft. 6 in. high. In the center an oak tree about two feet in diameter is now growing. Adjoining this mound at the southeast is a slightly smaller circle, 42 ft. in diameter, with walls only 10 in. high, the two structures being arranged as shown in the diagram (fig. 15). Test-holes in and about these mounds failed to reveal anything but a few potsherds, flint chips, and animal bones, so the work was finally abandoned, after testing the remains of still another but smaller earth-

lodge mound about a hundred feet to the north. The site had been so large and the mounds so scattered that it was impracticable to make a measured map of the

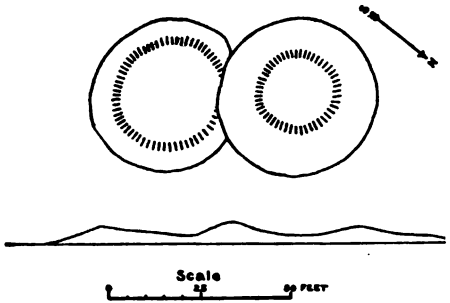


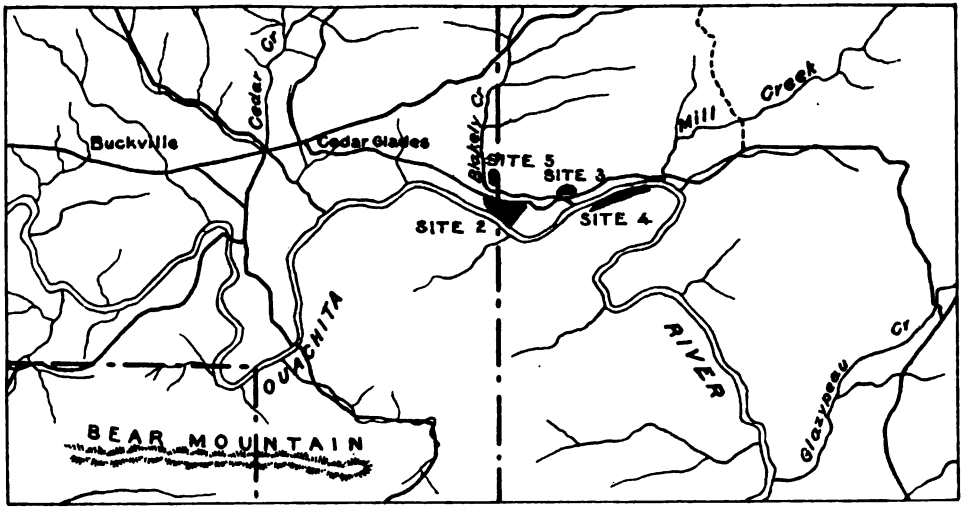
FIG. 15.—Plan and section of Mound 7, Site 1, Hot Springs.

site; but the appended sketch-map (pl XVI) will give a fairly accurate idea of the lay of the land.

CHAPTER IX

Sites near Cedar Glades, West of Hot Springs

DURING all our stay in the Hot Springs region we had heard very favorable reports of the district near Cedar Glades, a small town near Ouachita river, about 22 miles west of the city—reports of numerous mounds and of many actual finds of artifacts. Chief among the latter was that of Mr Cotton Golden, on whose property a flood had laid bare an ancient cemetery from which he had taken a fine collection of pottery vessels, pipes, and other things of interest, most of which are now on exhibition in the Fordyce Bath House in Hot Springs. Mr Golden, when interviewed, thought his place had been pretty well cleared of aboriginal objects, so we went to Judge O. H. Sumpter, owner of the



MAP SHOWING LOCATION OF SITES EXPLORED WEST OF HOT SPRINGS

next farm up the river from Golden's, receiving from him permission to excavate. Thanks are due both to Judge Sumpter and to Mr John Lillard, his tenant, who granted us many favors. A map of the sites we examined in this district is shown in pl. XVII.

SUMPTER PLACE

The Sumpter farm, which we called "Site 2, Hot Springs, Ark.", is a tract of practically level alluvial land lying in the fork of the two streams where Blakeley creek joins the Ouachita about 18 miles west of Hot Springs. Most of it bears abundant traces of ancient occupancy, the most notable of which is the oval platform mound (Mound 1), in the middle of which the farm-house stands.

MOUND 1.—It is situated about 150 yards south of Blakeley creek and half a mile above its mouth; it measures about 150 ft. in length, 80 ft. in width, and 5 ft. in height, but the exact limits, on account of constant plowing, are hard to define. On the eastern end of the summit

plateau was an elevation about 2 ft. higher, at the western end a smaller one of about half that height. At this end an excavation for a root cellar, made in former years, had revealed human bones, and potsherds of good size were quite abundant about the mound, but persistent digging of large test-holes down to the undisturbed subsoil failed to expose burials or any relics other than such village refuse as potsherds, animal bones, flint chips, and broken implements; hence we finally abandoned the work in this attractive looking mound. It may be of interest to note that in a recent flood this mound was the only part of the farm not under water.

MOUND 2.—Mound 2 is situated almost directly south of Mound 1, but fully a quarter of a mile distant, not more than 200 ft. from the banks of the Ouachita. Circular, made of sand, about 85 ft. in diameter and 5 ft. high, it so nearly resembled the mounds in which we had made important finds in the Ozan and Washington regions, that we inaugurated work with great expectations. Several trenches and

large test-holes dug down to the subsoil revealed nothing, however, but two burials on the southeastern side of the mound, without artifacts, and no other objects except the incidental odds and ends found in village refuse, the best of which were a bone implement for removing hair from skins (pl. CXXXV, *a*), some good steatite beads (fig. 29), and some beautifully made, tiny arrowpoints. A few yards north of the large mound the remains of a very small earth-lodge yielded a good celt, and some pottery fragments that had been subjected to such intense heat that they had partly melted and had become vitrified. At the western end of the Sumpter farm, on the banks of Blakeley creek, lay a group of five mounds, all of the fallen earth-lodge type, and three of them lying in a row in contact. Persistent digging in and about these mounds failed to locate anything other than ordinary village refuse.

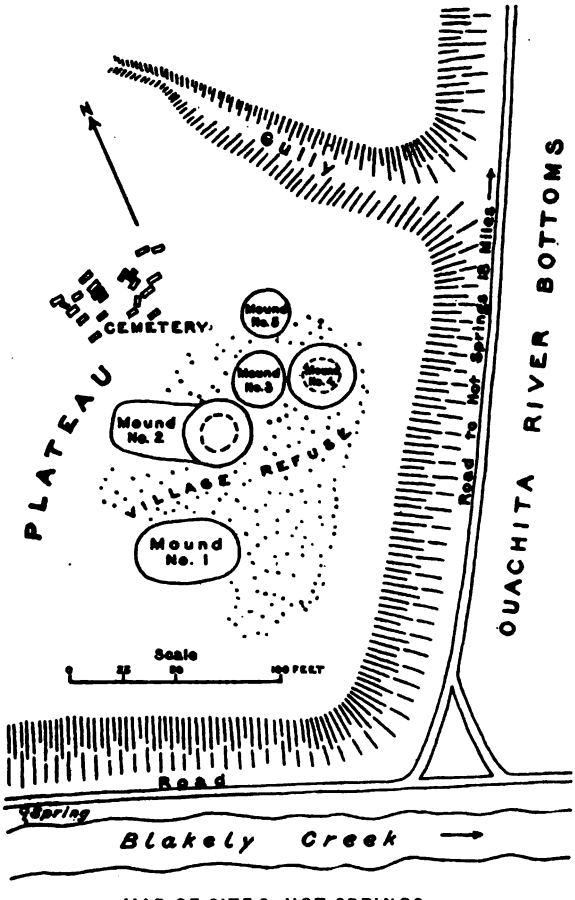
RITTER PLACE

Across Blakeley creek from the Sumpter farm lies a tract owed by Mr T. H. Ritter,

where, on a wooded plateau overlooking the creek on one side and the Ouachita bottoms on the other, is situated the mound group with adjacent cemetery recorded in our notes as Site 3, Hot Springs, Ark. At the foot of the bluff is a copious, perennial spring, which doubtless furnished water to the ancient inhabitants.

MOUND 1.—There were five of these mounds, arranged as shown in the appended map (pl. XVIII). Mound 1 was oval in form, a little more than 50 ft. in length, 36 ft. wide, and 4 ft. 6 in. high, and had apparently been an earth-lodge, for excavation revealed at the ground level a ring of five-inch post-holes, 12 in. to 14 in. deep, and about a foot apart, enclosing an area 16 ft. by 30 ft., which evidently had been the size of the room thus outlined. In the center was a circular depression, probably the fireplace, about 5 ft. in diameter and 10 in. deep, and still filled with ashes. Perhaps the mound had been built higher after the collapse of the original lodge.

MOUND 2.—Our trenches failed to un-



MAP OF SITE 3, HOT SPRINGS

cover anything but village refuse, however, so we commenced work on Mound 2, which consisted of a typical, round, fallen earth-lodge mound with sunken top, some 5 ft. 6 in. high and 34 ft. in diameter, to which was attached, at the west, a flat platform of earth, 33 ft. by 30 ft., and about 3 ft. high. This was tested thoroughly, but yielded nothing except village refuse.

OTHER MOUNDS.—Adjoining Mound 2 to the north was another, Mound 3, lower and with rounded top, but likewise a fallen earth-lodge; as was another, Mound 4, still lower, with a sunken top, adjoining Mound 3 on the east. Mound 5 was still another, with rounded top, lying a few feet north of Mound 3. These last three mounds were not thoroughly explored, as the cemetery was discovered just before we reached them, and kept us busy until the work of the expedition was brought to a close.

CEMETERY.—After many days of work on the Sumpter farm mounds without success, followed by arduous labor at this

site without reward, the writer started out through the woods from this group to look for other mounds, and had not gone more than 60 ft. northwest of Mound 3 when he noticed a series of slight ridges and hollows on the surface of the ground, usually on this plateau quite smooth. A little digging showed the ridges to consist of the tough yellowish soil characteristic of the plateau, containing few stones, mostly small, while the soil in the hollows was looser, darker, and full of rocks weighing 25 to 75 lbs. Although the writer had never before found large stones in Arkansas graves, he realized that these hollows represented disturbances and were probably graves. Setting to work here, a cemetery of apparently early date was uncovered and found to belong to what may be characterized as the "Mound" or Caddo culture, but ruder and possibly earlier than that found on most sites in the region, which itself is cruder than the culture represented at Ozan and Washington. Many of the dead had no objects whatever buried with them, and those that were

honored in this way usually had very few. That the cemetery had been used for a considerable period is shown by the frequent overlapping of the graves. The first grave of the twenty-one opened was, strangely enough, the most productive one; it contained the greatly decomposed remains of an adult extended on the back, headed southwest, at a depth of 2 ft. 3 in. At the feet lay a small water-bottle, an inverted large coarse bowl, and a piece of a celt, the pottery badly broken by the rocks which filled the grave. At the right hip was a deposit of five tiny arrowpoints pointing toward the foot of the grave, a large point, several chips and pieces of crystal, six very hard smooth pebbles, perhaps polishers, and a geode. Of the remaining twenty graves, ten held nothing but traces of bones, while the other ten together yielded eleven bowls and pots, three water-bottles, a pipe of the coarse, double-cone type (like pl. CIV, *c*), three arrowpoints, and two pottery smoothers. Most of the pottery was broken. All the twenty-one graves contained adult skeletons, in

two cases two each; but in several instances traces of children's skulls were found just beneath the sod, yet no graves could be discerned nor objects found. All the skeletons lay extended on the back; eight of them were headed west, seven west-southwest, three southwest, one northwest, and one west-northwest; while the depths varied from 1 ft. 5 in. to 3 ft. 2 in., with an average of a little more than 2 ft. The soil in many cases was very hard and compact, and the digging difficult.

GOLDEN PLACE

A little work was done on Mr Cotton Golden's property, before mentioned, which we called Site 4, Hot Springs, Ark. This is a long village-site with occasional mounds on the high bluffs just south of Ouachita river, opposite the mouth of Blakeley creek, and extending thence downstream about three-quarters of a mile. At the eastern end of this site, on a little terrace about 150 yds. from the river-bank, is the spot where Mr Golden found the beforementioned cemetery after the flood in the

fall of 1915, and unearthed upward of forty pottery vessels of various forms, three pipes, and many other things. Testing at this point failed to locate other graves, so we started to excavate at a point on the river bluffs not far downstream from Mr Golden's house, a place where occasional bones and pottery had been washed out for years. The ground, though sandy, was compact and nearly as hard as concrete, making digging more difficult than at any other place we had worked. Owing to the homogeneous nature of the soil it was next to impossible to detect the disturbance due to the presence of a grave; hence, we were fortunate to find what we did. About 4 ft. back from the edge of the bluff was found the remains of a skull, at a depth of 2 ft. 4 in., heading west; and a few feet east of this, near where the legs had been, a large plain water-bottle, and a small decorated one. Near the large bottle lay a black arrowpoint of unusual form, while about 6 in. above the bottles and 15 in. to the north lay a remarkable bowl with two handles rising from the rim on opposite

sides, each bearing the little effigy of a bear modeled in the round (pl. XXXI, *a*). It could not be ascertained definitely whether this bowl belonged to Burial 1, or to one adjoining, whose bones had entirely disappeared. A number of days' digging brought to light two other burials here, one, barely traceable, headed west, at a depth of 2 ft., with a jar of very thin ware near the left shin (pl. LVI, *a*), while the other was a slight stain only, in the form of a grave, but without bones, containing, however, a broken deep bowl. As no further burials appeared after several days' additional work, we abandoned the place. Thanks are due to Mr Cotton Golden, the owner, and to Mr T. H. Ritter, owner of the preceding site, for permission to dig and for valued assistance in various ways.

ROBBINS PLACE

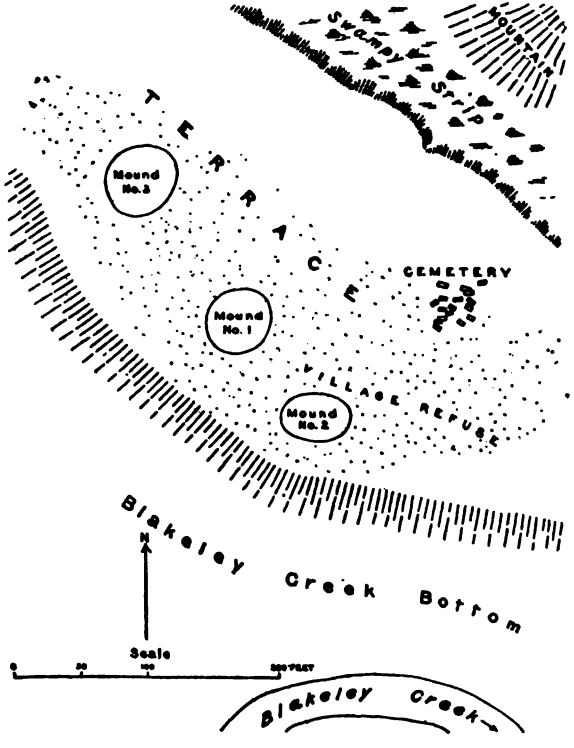
The most productive site in this district, so far as our expedition was concerned, was recorded in our notes as Site 5, Hot Springs, Ark. It is on the property of Mr Samuel Robbins, Sr, of Cedar Glades, on the east

bank of Blakeley creek, a mile and a quarter above its junction with the Ouachita, and consists of a village-site occupying a terrace on the edge of the creek bottoms, perhaps 12 ft. above the present average creek level. Flint chips and other village signs were quite numerous for about 200 yds. along the terrace, here about 100 ft. wide. Back of it, between the site and the mountain, lies a wooded swampy strip, while on the hillside above the northern end is a fine large spring.

MOUNDS.—Approximately in the middle of the village-site stands a well-preserved mound, about 4 ft. high and measuring 60 ft. long by 50 ft. wide, the longer axis extending northeast-southwest. Here have been plowed out a number of specimens, including a good pottery vessel (pl. XLIX, *b*), which the owner, Mr Robbins, kindly presented to the expedition. We take this opportunity to thank him for the gift, and also for the generous permission to dig up his corn-field. Another and lower mound, 65 ft. in diameter and 2 ft. high, may be seen farther along the terrace

to the northwest; and still another to the southeast of the large mound, this one 48 ft. by 56 ft. and 18 in. high. The relative positions of these are shown in the accompanying map (pl. XIX). Not only the fact that a vessel and other objects had been plowed up, but tiny pieces of human bone and good-sized potsherds lying on the surface of the large mound, induced us to commence a trench on the eastern side. This we dug about half-way through the mound without finding anything but a thick burned layer on top, and some village refuse; then the discovery of a richer spot made us abandon the mound, and we never found time to return to it or to test the others before the work of the expedition closed; hence these, like the mounds and cemetery at Site 3, were left unfinished.

CEMETERY.—The discovery referred to was made in this way: Finds were very few and far between in the mound, so one afternoon the writer decided to look the site over for surface specimens as a relaxation. About 175 ft. east of the mound an unusually large potsherd, turned out in



MAP OF SITE 5, HOT SPRINGS

cultivating corn, was noticed, and in the vicinity some minute but unmistakable fragments of human skull were observed. Work at this point resulted in finding a cemetery which proved to contain seventeen burials. Two of the graves had two skeletons each; most were adults, but two adolescents were found. As a rule the bones were in very bad condition or so nearly missing that the graves had to be traced by the disturbance of the hard yellow subsoil. Depths varied from 6 in., where bones and pottery had been badly mangled by the plow, to 2 ft. 6 in., with an average of about 18 in. Of the seventeen burials, seven were headed west, five west-northwest, two west-southwest, two west by north, and one northwest. Only two of the graves had no objects buried with the remains; the rest yielded eleven earthen water-bottles and twenty-three other pottery vessels (about a third of them perfect), a nearly whole pipe of the double-cone type (pl. CIV, *c*), and part of another, a discoidal stone (pl. CXXVII, *b*)—the only one found by the expedition,—a flint blade, 5 in. long,

fifteen tiny arrowpoints, a good red-paint stone and pieces of paint, four celts, and three smoothing stones. Here, as at the other sites in the Hot Springs region, the tendency was to group the funerary offerings about the feet of the dead, reversing the practice noted about Ozan and Washington, where nearly everything was placed at the head.

CONCLUSIONS.—Conditions at this site gave the impression that it is somewhat more recent than Site 3, but of about the same age as Mr Golden's finds at Site 4, the art, although not the highest known in the district, showing quite an advance over that shown by the specimens found on the sites we considered earlier. While resembling them in a general way, the best of the pottery vessels found here are on the whole inferior to those found about Ozan and Washington, and the pipes are very different, resembling more the heavy coarse types prevalent in the eastern part of the state. Many other sites were reported to us, both up and down the river, that seem very promising. One of them, a mound

group just across the river from Cedar Glades, yielded a large collection of pottery years ago, some of the vessels, according to report, being unusually fine and bluish or greenish in color; while another group on the Adair farm near Buckville, above Cedar Glades, is the most promising seen in the region, and the art, as shown by potsherds gathered from the surface, exceptionally high and of Caddo type. There is certainly abundant opportunity for further exploration in the Ouachita river valley.

CHAPTER X

Culture Identified as Caddo

LEAVING our description of the various sites visited and the phenomena there encountered during the expedition's twenty months of wanderings, we turn now to an account of the artifacts procured, endeavoring to present the information that may be derived from them, and the circumstances of their finding concerning the life and the identity of the ancient people who made them, amplified by accounts of early travelers.

COMPARISON OF CULTURES

When the expedition commenced its work in the region of southwestern Arkansas, it was observed, in looking over the surface of various sites, that the objects

found were not homogeneous, but seemed to fall logically into two classes, one quite crude, one very fine, which we took to be evidence of the presence of distinct cultures. On the one hand we found many sherds of coarse, heavy ware, decorated with bold, incised, mainly angular patterns, crudely executed; on the other hand, numerous fragments of fine, thin pottery, handsomely decorated with engraved designs, carefully and gracefully drawn in many complex forms, and the designs intensified by filling the lines with red or white paint—in short, the style of pottery which we called, for want of a better name, "Red River" ware. The same contrast was noticeable among the arrowpoints, for we found (1) a numerous class of flints, quite heavy and massive in workmanship, the arrowheads averaging at least two inches long, and representing many forms, but especially the "lozenge-shape," best described as having the form of two acute triangles, one of them truncated, placed base to base, and (2) another entirely different class of very small, thin, and

delicately formed arrowpoints for the greater part about three-quarters and some less than half an inch in length. But when we commenced to observe that both kinds of pottery and both varieties of projectile points were found on the surface of almost every site we examined, our hypothesis of two cultures began to lose strength; and when we finally found, not once but many times, both kinds of pottery in the same grave, and noticed that while small points predominated in the graves, large ones were frequently found also, we decided that, so far as the Ozan-Washington district was concerned, there was evidence of only one culture. The people who occupied all the sites had obviously possessed the same manufactures and customs, and the few differences discernible between one site and another are only such as can be accounted for by differences in time (in the date of occupancy) and in place (the slight differences due to purely local customs in neighboring villages). At Mineral Springs, however, although the culture was substantially the same, we found some

greater differences, the most noticeable of which was the frequent placing of long flint knives (pls. CX, CXI) with the burials, a custom which was not practised at any of the other sites. It was also observed that much less pottery was found in proportion to the number of burials, and that what was found was mainly of rather inferior quality, except the ware discovered in the two deep graves in Mound 2, which yielded some of the finest "Red River" vessels in the collection. When we removed to the Hot Springs district, seventy miles to the northeast, we found the pottery still similar; although somewhat cruder, some of the forms of the small arrowpoints were different, the mounds were smaller, and the pipes were entirely different; but the impression derived from the results as a whole was that the culture of this region was a slightly less highly developed variant of that observed about Ozan. In fact, the culture of the entire region visited by the expedition may be regarded as a unit, and comparison of the specimens obtained with those from sur-

rounding areas seems to indicate that the relationships of this unit were rather with the Southeastern type of culture than with that of the central Mississippi valley, and that its resemblances to the Plains and Pueblo cultures are few indeed.

TRACES OF EARLIER CULTURE.—At Lawrence, near Hot Springs, however, traces of what seems to be an earlier and less clearly defined culture were observed, in the deep deposit which has been described elsewhere in this paper. All it is necessary to state here is that below the pottery and the small and the lozenge-shaped arrowpoints of the mound-building Indians, was found a deep deposit containing relics of a people who used many forms of large arrowpoints, but not the small nor the lozenge-shaped large kind, and so far as we could find out, had no pottery at all.

THE LAST OCCUPANTS.—As to the identity of this earlier people, or whether or not they were related to the later, we have no evidence at present; but, fortunately, we are not so deeply in the dark with

respect to the later comers whose remains furnished the bulk of the artifacts. That we may call these the very last Indians living permanently in the region, the writer can not doubt, for in no case has he observed the relics of other cultures superimposed on theirs; but absolute confirmation (the finding of articles of European origin among those of native make) has not been forthcoming—a phenomenon which would of course indicate that the inhabitants of that particular village had been on the ground at the coming of the whites.

COMING OF EUROPEANS

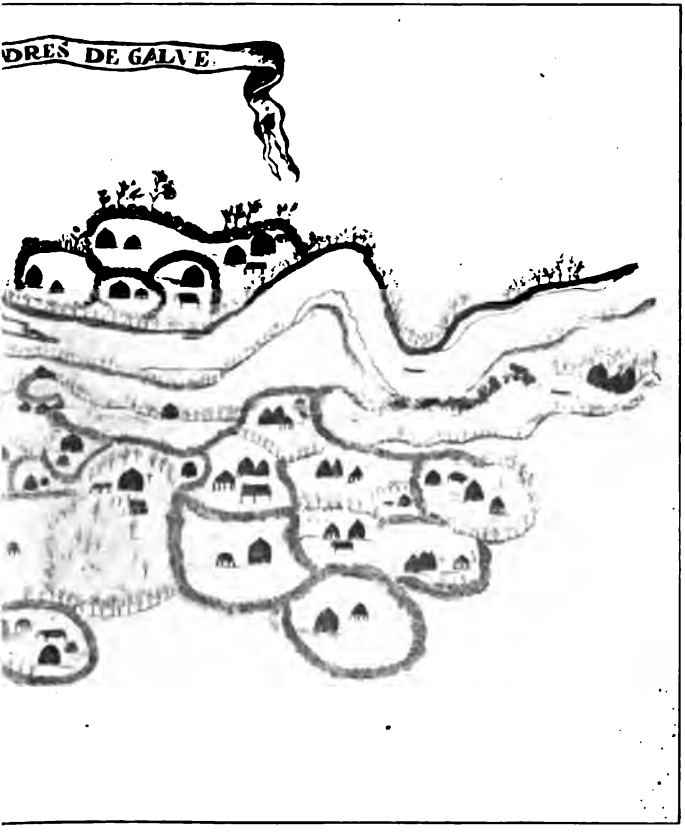
DE SOTO.—Given that the makers of the artifacts gathered by us were the last Indians in this region, we find that most, if not all, authorities, early and modern, locate the Caddo and related tribes here. One of the earliest apparent references, about 1540, is to be found in the account by the "Knight of Elvas," one of De Soto's party, who refers to the "Nondacao" (which may be intended for "Nardacao") as being situated not far from a

river that was subject to great floods without there being any rain in that country—still a notable characteristic of Red river in Arkansas and Louisiana, due to rains on its distant head-waters.[2] "Nandacao," Mooney thinks, refers to the Nadako, or Anadarko, one of the tribes related to the Caddo.[3]

LASALLE'S COMPANIONS DISCOVER CADDO.—Certain it is that the companions of La Salle found the true Caddo, or Kadohadacho, whom they called Cadodaquious, in or near the area occupied by the culture we are describing, to judge from their itinerary, in June 1687, a few mo after the murder of that ill-fated explorer. This is shown by the writings of Joutel[4] and Father Douay,[5] both of whom took part in La Salle's desperate attempt to reach the Mississippi overland after his unfortunate landing on the Texas coast, and subsequent disasters.

PÉNICAUT AND LATER AUTHORITIES.—More explicit in his location of the "Cadodaquioux" was Pénicaut,[6] who reported that they lived on the Sablonière, or Red

CONTEMPORARY DRAWING OF A CADDO VILLAGE IN THE SEVEN
Reproduced by courtesy of the author from "Texas in the M.



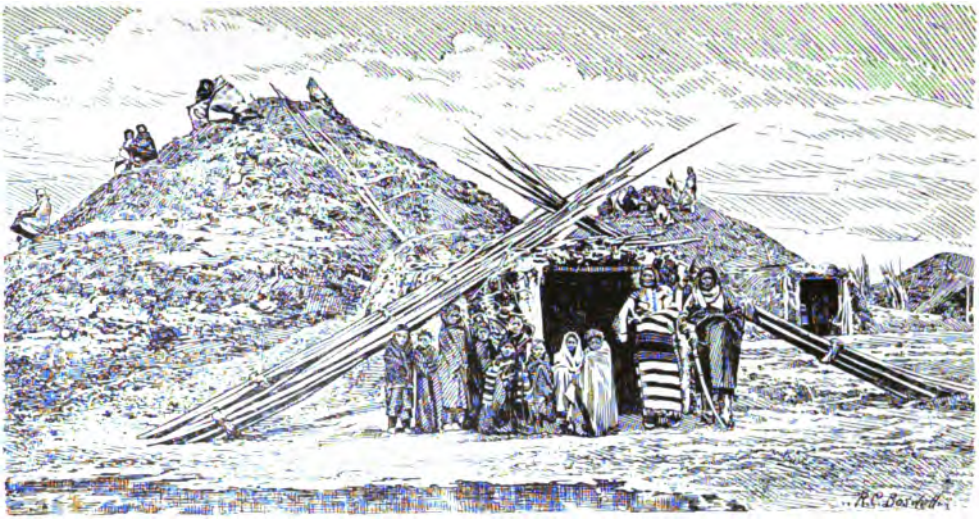
NTEENTH CENTURY, NEAR THE PRESENT CITY OF TEXARKANA
iddle Eighteenth Century," by Herbert Eugene Bolton, Ph.D.

river, about one hundred leagues by water above the Natchitoches, who in turn resided seventy leagues above the junction of the Red with the Mississippi, a total of one hundred and seventy leagues, or, say, five hundred and ten miles, which places the Caddo in 1701 a little way above the big bend of Red river in the vicinity of the present Fulton and Texarkana, in the very heart of the culture under discussion. From this date on until recent years many references could be given to establish the same fact, one of the latest being Bolton, who says, "The Caddo, whose culture was similar, lived northeast of the Hasinai, along the Red River, between Natchitoches and the region of Texarkana."[7] In the same work he publishes the interesting contemporary "Map of the Cadodacho Indian Settlements near Texarkana, based on Therán's exploration of 1691" (pl. xx) as a frontispiece, and opposite page 382, a Spanish map of 1771 showing the "Cadodachos" in the same district, and similarly locates them in the frontispiece "Map of Texas in the Eighteenth Century," com-

piled from original data, in another important work.[8] We will refer to these later.

CORROBORATIVE EVIDENCE

All this, without anything more, would seem decisive, but interesting corroborative evidence from an unexpected source, encountered by the merest accident, is furnished by some pottery vessels forming part of an old ethnological (not archeological) collection in the New York Historical Society, which are almost identical in form and decoration with our "Red River" ware, and bear the label "Caddo Indians Louisiana." In the same connection we may note the fact that two tribes of Caddoan stock, the Pawnee and the Arikara, have built, up to recent years, earth-lodges (pl. XX A) similar to those whose ruins, in the form of low mounds, were found so frequently by our expedition. Of course, to make the identification absolutely complete it would be necessary to find some site known to have been occupied by the Caddo in early historic times, and, with the objects of aboriginal character found here,



EARTH-LODGES OF THE PAWNEE, A CADDOAN TRIBE
Drawn from an old photograph. Courtesy of the Bureau of American Ethnology

to work back and compare them with the collections from prehistoric sites.

IDENTIFICATION AS CADDO

Even without this, the writer feels safe in saying that the objects in our collection from the Ozan-Washington-Mineral Springs district were made by the Caddo Indians, and those from the Hot Springs region by some tribe nearly related to them.

CHAPTER XI

Distribution of Caddo Culture

BEFORE proceeding further, it might be well to call attention to the fact that Mr Moore's expedition on Red river, after leaving a similar culture, probably that of the Natchitoches, closely related to the Caddo, in Red River parish, Louisiana, encountered, soon after entering Arkansas, the same culture that we afterward found about Ozan—or rather a slightly more advanced form of it—and for that reason, although we found some things he did not, and vice versa, the majority of our pieces are very similar indeed to those he figures.[9] For example, the bowl shown in our pl. XXXIII. *b*, is like his fig. 130; our bottle, illustrated in pl. LXXVI, *b*, resembles his fig. 68; our pot in pl. LI, *a*, bears approximately the same pattern as that shown in

his fig. 112, and the same is true of our pl. LXIV, *a*, and his fig. 121. In pipes, our long-stemmed examples are like those in Mr Moore's fig. 39, some of our short ones like his figs. 66 and 84; while many of our small arrowpoints may be compared with those he illustrates in figs. 29, 33, and 131. Mr Moore seems to have met a quite similar culture, which he has described in another work,[10] in the Ouachita river valley farther eastward, where lived another related tribe for whom the stream was named, although strong differences begin to develop here. Some of the types he illustrates from this region are almost identical with some of ours: for instance, his bottle in fig. 86, and ours of pl. LXXXVI, *b*; his bottle, pl. VIII, and our pl. LXXIII, *a*. He found a few examples of the style of pottery we call "Red River ware" as far east as Lincoln and Jefferson counties, Arkansas, on Arkansas river,[11] which the writer thinks probably reached that district through intertribal trade; at least, this is the easternmost point from which, to the writer's knowledge, typical specimens have

been reported. We found "Red River ware" as far north as the upper Ouachita valley above Hot Springs, and in such quantity that it seemed probable that the style must extend still farther north. Its exact westerly extension is unknown, but the writer is certain, from what was heard while in the field, that it must extend into eastern Oklahoma. There is no information at hand concerning its distribution south and southwest of Fulton, but we may look for it at least 150 miles in those directions.

THE TEJAS LEAGUES

This is because the Caddo, when first met by the whites, had many kinsmen of similar culture in that region, for they were but one of a considerable number of related tribes occupying a large and fertile country in what is now eastern Texas, western Louisiana, southwestern Arkansas, and southeastern Oklahoma—tribes which were frequently grouped together by the Spaniards under the name of "Tejas," said to mean "friends." These tribes were united into a number of leagues or

confederacies, of which two especially concern us: one the Cadodacho (Caddo proper), because it occupied the territory visited by our expedition in southwestern Arkansas; the other, a group called Aseney (Hasinai) by the Spaniards, living south and southwest of the Cadodacho, interesting to us because our two best contemporary sources of information, Joutel and Fray Francisco de Jesus María Casañas, made most of their observations among them. Joutel called these people "Cenis" and "Assonis;" Fray Jesus María, "Tejas" or "Aseney." Fortunately, we have Joutel's own statement that the customs of the "Cadodaquious" were "almost the same" as those of the "Cenis,"[12] so what we can find in the early writings concerning the latter may be freely used to fill out our picture of the life of the Caddo. Some details may not be quite correct, but the portrait as a whole will probably be a good likeness of the people who occupied the sites we explored. Information bearing directly on the Caddo proper has, of course, been utilized wherever possible.

AUTHORITIES.—Joutel, who, as before stated, was one of the companions of La Salle, wrote a "Relation" of his experiences, which has been published in full by Margry, and also a "Journal Historique," published in Paris in 1713, with an English translation shortly after. The writer has used the first freely, but as only the English edition[13] of the second was available, he has taken from the Journal only such information as does not appear in the Relation. The fullest account of the "Tejas" tribes may be found in the report of Fray Francisco Jesus María Casañas, written in 1691, after he had been stationed as a missionary among them for more than a year; but as this exists in manuscript only, not even a translation having been published, the writer has used the article on the Tejas written by Mrs Harby which is founded largely on it.[14] Other contemporary authors have been consulted freely, among the best of whom is Father Manzanet, who was Fray Jesus María's superior.[15]

OFFICERS.—The above mentioned groups.

or leagues, of the "Tejas" Indians were apparently each under the command of a great chief called *xinesi*, and Mrs Harby thinks there is evidence that they were joined together in a confederation under a "great *xinesi*." Each tribe had a chief or governor called a *caddi*, under whom were subchiefs, or *canahas*, in number corresponding to the size of the tribe, from three to eight. One of these gave orders for preparing the chief's sleeping place on the buffalo hunt and the war-path, and filled and lighted his pipe for him. "There were other subordinate officers called *chayas*, who executed all which the *canahas* proclaimed. Under these again were petty officers called *jaumas*, who insured promptness in the execution of punishment, seeing that the idlers were whipped by giving them strokes with a rod over the legs and belly." When the Caddi wished to transact any business, he sent the *canahas* to summon the elders of the tribe to meet him in council.[16] That there was a caste of nobility, somewhat as among the Natchez, is suggested by Mrs Harby's evidence.

COMMUNAL LIFE.—It appears that their life, as among many other Indian peoples, was more or less communal, for we are informed that eight or ten families often lived in one dwelling, and they cultivated the land about it in common; certainly the food supply was kept in common, for Joutel says:

"The mistress, who must have been the mother of the chief, for she was aged, had charge of all the provisions, for that is the custom, that in each cabin, one woman holds supremacy over the supplies, and makes the distribution to each, although there may be several families in the one cabin."[17]

The women, we are told, did all the work about the house, including gathering wood and pounding corn, and in addition to this did most of the garden work after the land had once been broken, and frequently went out to bring in the meat after the hunter had slain his game.[18] Manzanet mentions a method of caring for the chief's house which might be called communal:

"The following are the domestic arrangements in the governor's house: Every eight

days ten Indian women undertake the housework; each day at sunrise these women come laden with firewood, sweep out the courtyard and the house, carry water from a brook at some distance . . . . and grind corn for the corn soup, bread, and parched corn. Each one of the women goes home for the night, returning to the governor's house in the morning."[19]

We also learn from Fray Jesus María Casañas that if the house and property of one of the tribesmen were destroyed, all the rest joined in and contributed toward providing him with a new home and all needful for his subsistence.[20]

MARRIAGE.—The looseness of the marriage tie among these people is treated at considerable length by Mrs Harby, whose statements, derived from different authors, are rather contradictory. We do learn, however, that if a girl was a maiden, the proper way to wed her was for the suitor to present her with some of his best possessions. If her parents allowed her to accept these gifts, this was an assent to the marriage, but the bridegroom could not take her away until the *caddi* was first informed, If the woman was not a maiden, then the

match, which might be temporary or more or less permanent, concerned the two contracting parties only, and a woman frequently left her husband to take another who could offer her more advantages—a phenomenon we sometimes notice in modern society. Father Jesus María sums up the situation when he says:

> "But there is one thing I much appreciate—they never take more than one wife at the same time; that is, they never bring the second home where the first will see her and know of it. If she should discover that he is living with some other, she will have the honor to go away and leave him to her, finding for herself some other husband."[21]

In line with the above, but less detailed, is Joutel's statement that the Cadodaquious "love their children, but have not many, perhaps because the women do not always stay with their husbands but leave each other on the least provocation." He touches on a widespread Indian custom when he proceeds to say:

> "The women eat and live apart during their menstrual periods, and have no dealings with the world, and will not even allow any one to borrow some of their fire."[22]

FATE OF THE CADDO TRIBES

When visited by Joutel and Douay in 1687, the Caddo were at the height of their glory, apparently, but this happy condition did not long endure. for as early as 1719 an old "Cadodaquious" chief complained to La Harpe that most of their nation had been killed or enslaved, and that they returned thanks to the Great Spirit that the French had come to protect them.[23] From then on, it appears that the tribe continued its decline, and outlying branches, as they found themselves weakening, withdrew from their lands and attached themselves to the main body, and related remnants joined them. In 1814, Brackenridge mentions the "Caddoquis" as being a small nation "situated thirty-five miles west of the main branch of Red river, 120 miles by land above Natchitoches, formerly 375 miles higher up," by which it would appear that by this time they had moved down the river.[24] By 1829 they had become "reduced by war and smallpox" to about 450 souls, but our

informant tells us that "they were the actual owners of the country, and their claim extends 1000 miles [*sic*] up Red river."[25] According to Mooney,[26] they made their first treaty with the United States in 1835, at which time they were still chiefly in Louisiana, southwest of Red river and adjoining Texas, afterward removing to Brazos river in Texas, below Fort Belknap, where they joined with the remnants of the Hainai and the Nadako of the old "Aseney" group, who "spoke the same language," in all numbering, in 1855, only about 700.[27] In 1859, says Mooney, they emigrated to Washita river, in what is now Oklahoma, to escape massacre at the hands of the whites who had resolved to exterminate all Indians, friendly or hostile, in Texas. When the Rebellion broke out, the Caddo, not wishing to take up arms against the Government, fled north into Kansas and remained there until the close of the war, when they returned to the Washita. Here the writer visited them in 1909, and found that this once numerous people had by this date dwindled to a little

more than 500 persons, counting the remnant of all the nearly related tribes now intermarried and forming a unit under the name of Caddo, or, in their own language, Hasinai,[28] a form of the "Aseney" or "Ceni" of earlier times.

CHAPTER XII

Ceramic Art

URNING at this point to the study of our collection, we find that it shows us a series, although a very incomplete one, of the products of Caddo industry, and as such, gives us some idea of their degree of advancement. But this is not all, for we can also deduce from our finds and early historical accounts other information concerning the ancient life of this people, pitifully meager, it is true, but lifting the veil of the past a little further and giving us a little more knowledge concerning them. Many of the facts that may be exhumed in this way relate to processes of manufacture, as in stone or clay, which were practically common property of all the tribes from Maine to the Gulf, from

the Atlantic to the Great Plains—some of them to the Pacific. Yet it may prove interesting to outline them here in connection with the description of our specimens.

Most interesting and spectacular of all the material found by the expedition in southwestern Arkansas is the pottery, for this region yields aboriginal earthenware that for quantity and for variety of form and decoration has few rivals in the territory now covered by the United States and Canada; in fact, only the Pueblo district of the Southwest and the mound region of the middle Mississippi valley can pretend to compare with it; and of these, the art of the latter area is in many ways inferior. Some idea of the quantity may be gained from the fact that eight months' work on the sites near Ozan netted us four hundred and twenty-one perfect and restorable vessels, besides all our other specimens; a few months at Washington yielded two hundred and forty-four; our stay at Mineral Springs thirty-two, while the work at Hot Springs brought us sixty-four,

making a grand total of six hundred and seventy-one vessels, whole or restored, in our collection, without considering such specimens as were found to be too much disintegrated or of too common a type to warrant restoration, and eight or ten that were exchanged with other institutions. Before examining the actual specimens, it may be well to look into the processes by which the pottery was manufactured, for the sake of a better understanding both of the objects themselves and of the terms employed in describing them.

MANUFACTURE OF POTTERY

SHAPING.—Everything seems to indicate that the Caddo made pottery in substantially the same manner as the other woodland tribes of the East and Southeast, methods which the writer has been privileged to see in use among the Catawba and the Cherokee,[29] but with the addition of certain more original features which will be described later. The vessels were evidently shaped in the usual way, by roll-

ing out carefully prepared and kneaded clay into long strips, which were coiled round and round, one upon another, until the desired form had been built up, each coil being blended with the preceding, as applied, by the aid of the fingers and a wet smoothing stone—all of which is known by the finding of pottery with the coils imperfectly coalesced, and much-worn smoothing stones, combined with our knowledge of the modern Catawba and Cherokee work, and the recorded observations of early travelers among neighboring tribes.

Butel-Dumont gives the best early description that we have of the aboriginal American potter's art as practised by the native women of Louisiana, although the tribe is not specified. He says:

"After having secured the proper kind of clay for this work and having cleaned it well, they take shells, which they grind, reducing them to a loose powder, very fine; they mix this very fine powder with the clay of which they have made provision, and wetting the whole with a little water, they knead it with hands and feet to make a paste, from which they fashion rolls six or seven feet long, of

whatever thickness they find convenient. Do they wish to make a plate or a vase? They take one of the rolls by the end, and establishing with the left hand the center of the piece they have in view, they wind the roll about this center with admirable speed and dexterity, describing a spiral; from time to time they dip their fingers in the water which they have always by them; and with the right hand they smooth the inside and outside of the vase they are planning to make, which without this attention would become corrugated. By this method they make all sorts of earthen utensils—dishes, plates, pans, pots, and jugs, of which some would contain forty or fifty pints. The firing of this pottery does not cost them much trouble. After drying it in the shade they light a great fire, and when they think they have as much embers as they need, they clean a place in the middle, and there arrange their vessels, and cover them with charcoal. It is thus that they give them the burning they require, after which they can be used on the fire, and have the same texture as ours. There is no doubt that their durability can be attributed to the powdered shells mixed with the clay that they use."[30]

This account would probably apply very well to our ancient Caddo, except the use of shell tempering for the clay, which they employed little, and for the omission of a very important implement, the smoothing stone, of which we found many during the

course of our excavations, and which is mentioned by Du Pratz as figuring prominently in Natchez clay-work, He says:

"Pottery is the work of women. They find greasy clay, and look it over while dry to throw out gravel if they find any; they make a mortar of the proper stiffness, then on a flat piece of wood they set up their workshop, on which they form their pottery with their fingers, and blend it with a pebble which they keep with great care for this work."[31]

Just such pebbles, showing long use, are figured in pl. CXXVI, *c*, and in fig. 25. It will be noted that the first account mentions charcoal instead of rotten wood as fuel for burning pottery, and that the second speaks of a flat piece of wood such as the writer observed among the Cherokee as a base on which to form the vessel. As among the Cherokee, also, the vessel under construction was often commenced in a gourd or an earthen bowl, for the marks of such are sometimes seen on the finished product, as in the case of the two bottles shown in pl. XCV.

DECORATION.—Incised as well as trailed and impressed patterns were applied after

the vessel had been formed, but before it had become hardened by drying or had been fired, and so were the raised nodes and ridges, while the polishing was done after drying, but before firing, with one of the aforementioned smoothers, kept always wet. And now comes the unusual feature: the engraved decoration—that distinguishing characteristic of "Red River ware"—was accomplished *after* the vessel had been dried, polished, and fired. Fortunately there are several vessels in the collection showing engraved decoration in a partly finished state—vessels that had received a little incised ornamentation before firing, and had then been fired, and even apparently used before the engraving was begun. The first step, as shown by our specimen, was to outline in freehand with some hard-pointed instrument, perhaps a sharp flint, the main lines of the pattern. This was done faintly and sketchily at first, until it was seen that the lines would connect properly; then the marks were scratched deeper with the stone point, and all the elaborations added, including the back-

ground made by scratching away a portion of the polished surface, and by cross-hatching. A bit of engraving commenced in this way by a skilled hand is shown in pl. LXXXVII, *a*, while *b* of the same plate shows a piece of engraved work done by an amateur, if the quality is any criterion. After the engraving had been completed, red or white paint was rubbed into the scratches to afford greater contrast, as is shown in the frontispiece.[31a] The designs, as may be seen from the specimens herein figured (pl. XXVII, *a;* XXVIII, *a;* LVIII, *a;* LXVII, *a;* LXIX), were often tastefully and skilfully worked out, and on the whole show a considerable advance in art on the part of their makers. So far as the writer knows, the combination of engraving with patterns of this character is not found in other parts of North America, although the same figures —the scroll, meander, concentric circles, and the like, may be found incised (not engraved) on pottery throughout the Southeastern states, and may still be seen on the beadwork of the modern Choctaw, Koasati, Alibamu, and other tribes whose

ancestors formerly occupied that part of the country; while the engraved technique is not confined to the Caddo district either, nor to that of their relatives, but occurs with different kinds of patterns, far to the east, as Moore's wonderful Moundville find in Alabama proves beyond a doubt.[22]

Among other localities from which engraved ware has been reported still farther away may be enumerated the vicinity of Augusta, Georgia, and Tarpon Springs, Florida, both sources of some of the specimens figured by Holmes.[23] This must not, of course, be confused with the "Red River ware," but it serves to suggest the affiliations of the old Caddo culture with that of the southeastern region.

Trailing or grooving was another unusual form of decoration practised here, in which the pattern is produced with broad, very smooth, sometimes polished grooves, seemingly made with an instrument having a round, very smooth, thick point, dragged or trailed along, then probably rubbed to and fro in the groove to give, in the better specimens, the polished effect. The work was

apparently done when the vessel to be decorated was about half-dry (pl. LI, *b*).

Incised patterns, which comprise many combinations of straight lines, angles, and curves, were probably made here as elsewhere with a wooden or a bone point, such as a bone awl, and were applied, as before indicated, while the vessel was still plastic, or by moistening the area to be decorated after it had been dried, but, of course, before firing (pl. XLVII). Combed decoration, usually employed as a background for incisions or grooves, seems to have been applied with a four- or five-toothed comb or with the notched end of a stick, or even a bunch of stiff grass-stems drawn over the surface of the vessel made soft by dampening with water, sometimes with a wavy motion that produced a pleasing effect (pl. LII). Impressed decorations were made in the ware, while soft, by pressing the fingernail (pl. LVII), the hollow end of a cane reed or a quill (pl. XXVI, *a*), or the carved end of a stick upon the plastic surface; but two methods noted farther east—the use of a carved paddle or of a

paddle wrapped in cord to give a corrugated decorative surface to the ware—were not seen here. Nodes and ridges were apparently made either by pinching the surrounding clay into such forms while soft, or by making them separately and sticking them on (pl. XXX, *b;* XXXIX, *b;* L, *b*).

COLOR.—A bright-red color in pottery was produced by dipping the vessel in a slip of soft prepared red clay or ocher that coated it uniformly all over, a kind that, when dried and fired, produced the proper tint. This process was noted among the Natchez in the early part of the eighteenth century by Du Pratz, who says, speaking of the White Bluff on the Mississippi where the Indians were accustomed to dig white clay for pottery: "On this same bluff are seen veins of ocher which the Natchez had just been digging to smear their pottery, which was pretty enough; when it had been coated with ocher, it became red after burning."[34] The black color sometimes seen could have been produced in the Catawba manner, by firing the pots inside a larger vessel filled with pieces of

corn-cob, the smoke from which penetrated the clay and produced a lustrous black surface.

TEMPERING.—Masses of kneaded potter's clay, tempered with sand ready for use, were not infrequently found in the graves, where also appeared occasional musselshells which may have been intended for grinding up for tempering clay to use in pottery-making, although shell-tempered ware is not common in this part of Arkansas. In certain graves were unearthed small pots and vases filled with very fine clay, probably intended for making the slip to give a smooth surface to pottery, or as material for the manufacture of specially fine objects, such as pipes.

PIPE MAKING.—Little was discovered to indicate how earthenware pipes were made, although it was seen that some had been given a bright red slip by dipping. The long-stemmed pipes (pl. CI, CII), whose lily-like delicacy is so characteristic, must have required considerable skill. The writer has not been able to reproduce them very well experimentally; indeed, the only

facts he could gather were that the long, slender stem with its large hole and thin walls must have been made by rolling out a long, thin strip of clay, and folding it around a reed or a slender, smooth stick as a core, carefully blending the single longitudinal joint. Then the bowl was formed of another thin piece, bent round and the joint blended, and attached to one end of the stem, still stiffened and strengthened by its core, which was afterward burned away in the firing.

FIRING.—It is likely that the Caddo fired their pottery and pipes in much the same manner as the Cherokee and the Catawba, or Butel-Dumont's "Louisiana tribe," by first drying them thoroughly in the shade, then ranging them around very close to a hot fire. After they had changed color here, the vessels were rolled over, mouth down, on a bed of hot ashes, and a pile of dry, rotten wood and bark or of charcoal was heaped upon them. This, when ignited, soon became, pots and all, a white-hot glowing mass, and by the time it had burned to ashes and the pots had

cooled enough to handle, they were found to be in prime condition (except for the few that had cracked in the process), and ready for use.

USES OF POTTERY

FOR COOKERY.—As to the use of pottery, the larger, rougher pots, and some of the bowls, judging by their sooty exteriors, were obviously used on the fire for cooking; this may be seen without the contemporary evidence of Joutel, who says, speaking of the Cenis, that among the movables of this people are "some earthen vessels which they are very skilful in making, and wherein they boil their meat or roots or sagamite which has been said is their pottage."[35] Manzanet also speaks of very large, round kettles of earthenware used for cooking corn soup,[36] and Father Jesus María Casañas says, "Their plates were small earthen pans."[37]

Our archeological work did not afford us more than a bare glimpse of Caddo cookery—merely the finding of the bones of small animals, mainly broken, in certain

pots buried with the dead, which would seem to indicate that rabbit stew was as popular in ancient Arkansas as it is today. This is not much, but Joutel[38] helps us a little here with his observations on the Ceni, informing us that "sagamite" is a thick soup, which may be made from corn flour, the corn having been parched on hot coals before grinding. This parched corn was often eaten, he says, without further cooking, being already cooked. Sagamite might be made also with beans, and even of acorn flour. Corn-bread, we are told, was often mixed with beans, and might be enveloped in corn-leaves and boiled, or baked in the ashes, in which case it was usually made of parched corn flour. Similar methods of boiling corn-bread in corn-leaves or husks were very widespread among the Woodland tribes, the writer having observed them among a people as distant as the modern Iroquois.[39] There was also, says Joutel, a sort of bread made with nuts and sunflower seeds. He also speaks of corn roasted on the cob, and notes that the old Assoni matron who was

mistress of the house where he stayed, put green beans in a great pot to cook without even removing the strings from them, and covered them with vine leaves until nearly done. Their only seasoning, he informs us, was effected by taking a handful or so of salty sand found near the village Naouidiche, soaking it for a while in water, and then pouring the water on the beans or whatever there was to be salted. "When the beans were cooked," he adds, "the good old lady gave us each our portion on a bark dish," which indicates that other sorts of dishes besides those of pottery were in use. Joutel called the old mistress of the cabin "good," perhaps, because she took such an interest in the welfare of her guests, and was always inquiring whether their stomachs were full, or whether they were hungry. In any event, she must have felt much gratified when Joutel, on departing, made her a present of an axe. Father Manzanet was served in the "Tejas" village with a lunch consisting of "the tamales that they make, with nuts, pinole (parched ground corn) very well prepared, a large crock full

of corn stewed with beans, and ground nuts;"[40] and Father Jesus María Casañas writes of buffalo meat, which he says was prepared in two ways only, boiled and roasted, and was eaten without broth.[41] Broth from meat, however, was, according to Joutel, used with acorn flour to make soup.[42] The acorns of different kinds of oaks they used as they would corn, crushing them into meal, and of that making their bread. . . . They used a kind of seed, that was fine like that of cabbage, and ground this up with (parched) maize and ate dry, as a powder, "first seeing that they had water near at hand, as it had a habit of sticking in the throat," according to Father Jesus María.[43] We learn also "that they are clean enough in their food; they have special pots for everything they cook; that is, the pot that serves for meat is not used for fish. They prepare all their food with bear's grease, which is white like hog's lard in winter, when it is congealed; in summer it is like olive oil, and never has a bad taste."[44]

BOWLS, CONICAL FORM

a, Rim horizontally notched; from Hot Springs (diam., 7.6 in.). *b*, Rim vertically notched; from Hot Springs (diam., 5.4 in.)

FOR WATER AND OILS.—We may surmise that the bottles were used for water, and very probably for animal and vegetal oils also, as Du Pratz says that such vessels were sometimes employed among the Natchez.[44]

FOR SERVING FOOD AND FOR CEREMONIES.—The ordinary bowls undoubtedly served for mixing and serving food, while the finer ones, as well as the handsomer examples of other types of vessels, may have been for ceremonial use, an example of which is related by Joutel and other early visitors to the Caddo, who say that they were accustomed to wash ceremonially the faces of distinguished guests, with water in an earthen bowl.[45]

The use of the vase-like forms, as well as some of the small, globular pots, both strangely enough with two holes in the rim for suspension, as containers for fine clay, have been mentioned, and to these we must add the use of some small vessels as paint receptacles, and of others as toys.

GENERAL CHARACTER OF THE WARE

Viewing the vessels as a whole, we notice that the average color is usually yellowish brown, with sometimes a tinge of red—the natural shade of the burned clay, when there has been no attempt to give the vessels the artificial red or black tone before mentioned.

The quality is decidedly variable, ranging from the coarse, crude ware of some large cooking-pots, to the fine, smooth, and symmetrical ware of many bottles, vases, and bowls. Variations in size are well shown by the photographs, taken side by side, of the largest and smallest specimens of bowls, pots, and bottles, respectively (pl. XXIV, XLIV, LXXI).

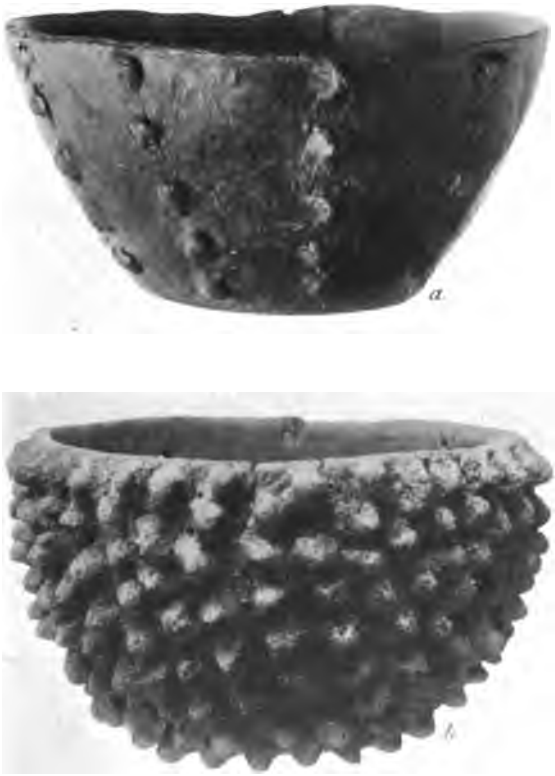
BOWLS.—The most numerous type of vessels is the bowl, with three hundred and twelve examples, a bowl being defined, for convenience, as a wide-mouthed vessel, the diameter of which is greater than its height. Three sub-types may be distinguished, although they grade into one another more or less. One of these is the

conical bowl shown in pl. XXI-XXIV, characterized by straight, flaring sides, the whole vessel having the form of a wide, inverted, truncated cone. The commonest form is the one shown in pl. XXI, *a*, whose only pretense at decoration is a notching of the rim, sometimes exaggerated, as in pl. XXI, *b*, while in rare instances this form bears engraved designs on the sides, as shown in pl. XXII, *b;* or handles, as in *a* of the same plate; or was decorated with nodes, as shown by both the specimens in pl. XXIII. In color, more of this type of vessels was red than of any other. In size the variation was considerable, as shown by pl. XXIV. More conical bowls in proportion to the entire number of vessels found were obtained in the Hot Springs district, but they were quite common about Ozan and Washington, although missing at Mineral Springs. Very different from the conical bowls were those of semiglobular form, characterized by inward-curving sides, producing a form resembling a more or less flattened spheroid with the top removed. The most common forms and

decorations of this type are shown by the two bowls in pl. XXV, and in *b* of pl. XXVI, which were widely distributed, pl. XXV, *b*, being especially abundant at Site 1, Ozan. Pl. XXVI, *a*, and both specimens in pl. XXVII, are all good examples of this type of bowl decorated with engraved figures, and the fine specimens shown in pl. XXVIII, found in the deep graves at Mineral Springs, show the "Red River" engraved technique at its height. Pl. XXIX exhibits two bowls of somewhat cruder decoration, and of a form more nearly cylindrical than common; pl. XXX, two that, while typical in form, are unusual in decoration, *a* moreover being provided with two holes near the rim for suspension. The very unusual node decoration on *b* was evidently pinched up with the finger-tips, while the clay was still plastic. Bowls of this type were sometimes provided with effigy handles, as seen in pl. XXXI, in which *a* has handles in the form of two little bears, now unfortunately headless, *b* projections resembling the head and tail of a parrot or macaw. The head on bowl *a* of pl. XXXII has a kind of

BOWLS, CONICAL FORM

a, Handles, slight decoration; from Site 11, Ozan (diam., 6.3 in.). *b*, Engraved decoration; from Site 1, Ozan (diam. 6.4 in.)



BOWLS, CONICAL FORM

a, Decoration by rows of nodes, from Hot Springs (diam., 6.2 in.).
b, Typical node decoration, from the Washington site (diam., 5.5 in.)

BOWLS. CONICAL FORM. SHOWING VARIATION IN SIZE

a, Largest, from Site 1, Ozan (diam., 16.2 in.). *b*, Smallest, from Site 2, Ozan (diam., 3.8 in.)

BOWLS, SEMIGLOBULAR FORM

a, Decoration by parallel lines, from Hot Springs (diam., 4.6 in.); *b*, By engraved triangles, from the Washington site (diam., 5.2 in.)

LARGE BOWLS. SEMIGLOBULAR FORM

a, Angular engraved decoration combined with impressed circles; from Mineral Springs (diam., 10.3 in.). *b*, Engraved triangular figures combined with parallel lines; from the Washington site (diam., 14 in.).

BOWLS, SEMIGLOBULAR FORM

a, Engraved circles and angles combined with impressed circles, from the Washington site (diam., 11.2 in.). *b*, Engraved scroll, from Site 1, Ozan (diam., 5.2 in.)

a

b

BOWLS, SEMIGLOBULAR FORM

Fine combinations of engraved angles and scrolls with impressed circles; both from the deep graves in Mound 2, Mineral Springs site. (Diam. of *a*, 7.5 in.; of *b*, 9.3 in.).

BOWLS, SEMIGLOBULAR FORM, FROM SITE 1, OZAN

a, Engraved meander and impressed circles (diam., 5.3 in.). *b*, Engraved circles and fingernail prints (diam., 3.4 in.)

BOWLS. SEMIGLOBULAR FORM

a, Engraved bent triangle pattern, from the Washington site (diam., 3.6 in.). *b*, Unusual node decoration, from Cedar Glades; Dr Williams collection (diam., 5.2 in.).

BOWLS. SEMIGLOBULAR FORM

a, Bear effigies on handles; from Site 4, Hot Springs (diam., 5 in.). *b*, Effigy handles representing a bird's head and tail; from Site 11, Ozan (diam., 3.5 in.).

BOWLS, SEMIGLOBULAR FORM

a, Handle representing head of animal, from the Washington site (diam., 4 in.). *b*, Effigy handle, probably representing a beaver's head, from Site 5, Ozan (diam., 5.7 in.).

BOWLS. CAZUELA FORM

a, Without handles, commonest form and design, from the Washington site (diam., 5.5 in.). *b*, With handles, a common form and decoration, from Site 5, Ozan (diam., 6.6 in.).

BOWLS, CAZUELA FORM: VARIANTS OF THE TYPICAL DECORATION

a, From Site 5, Ozan (diam., 5.9 in.). *b*, From Site 1, Ozan (diam., 7.8 in.)

BOWLS. CAZUELA FORM: VARIANTS OF THE TYPICAL DECORATION

a, From Site 1, Ozan (diam., 6.2 in.). *b*, From the Washington site (diam., 8 in.)

BOWLS. CAZUELA FORM. SHOWING WIDE DEVIATION FROM THE TYPICAL SHAPE AND DECORATION

a, From Cedar Glades; Dr Williams collection (diam., 5.7 in.). *b*, From the Washington site (diam., 5.3 in.)

BOWLS. CAZUELA FORM. UNUSUAL PATTERNS
Both from the Washington site. (Diam. of *a*, 5.3 in.; of *b*, 12 in.)

BOWLS. CAZUELA FORM. UNUSUAL DECORATION

a, From Site 5, Ozan (diam., 6.3 in.). *b*, From Washington site (diam., 6.2 in.).

BOWLS, CAZUELA FORM, UNUSUAL DECORATION

a, From Washington site (diam., 6 in.). *b*, From Site 11, Ozan (diam., 5.5 in.)

BOWLS, CAZUELA FORM, UNUSUAL SHAPES; BOTH FROM THE WASHINGTON SITE

a, Marginal points (diam., 6.5 in.). *b*, Large handles (diam., 4.4 in.)

BOWLS. CAZUELA FORM. UNUSUAL TECHNIQUE OF DECORATION

a, Incised decoration, from Cedar Glades, Dr Williams collection (diam., 5.8 in.). *b*, Incised and trailed decoration, from Site 11, Ozan (diam., 6.5 in.).

BOWL. INTERMEDIATE FORM
A very large specimen, red in color, from Site 1, Ozan (diam., 13.2 in.)

BOWLS. INTERMEDIATE FORM

a, Engraved scroll pattern, from Site 1, Ozan (diam., 4.3 in.). *b*, Conventional scroll design, from Site 5, Ozan (diam., 7.3 in.)

feline look, and may be intended for a panther, while that on *b* of the same plate, facing inward, resembles the head of a beaver. The two most abundant forms of bowls, in fact, of vessels of any kind, from the Ozan-Washington-Mineral Springs district, are shown in pl. XXXIII, belonging to a flat type consisting of a broad conical or slightly bulging base surmounted by a quite distinct rim, which either slopes slightly inward and then outward as in the present examples, slopes slightly inward without a surmounting lip, or rises vertically. Both are really variations of the same type, the only difference being that *b* has two rudimentary handles, while *a* has not. To this type, for lack of an appropriate English term, we gave the Spanish name *cazuela*, which is applied in Cuba to bowls of similar form. The pattern consists of a series of long S-shaped, engraved figures lying on their sides around the rim, and separated by a shorter figure which may be a smaller "S," a toothed circular device, or almost anything. A number of such variations may be seen in pl. XXXIV and XXXV, *a*. In pl. XXXV, *b*,

the long S figures, which the writer regards as modifications of the scroll pattern, run together; they are harder to distinguish in pl. XXXVI, *a*, while in *b* of the same plate they have blended into a mere zigzag. Pl. XXXVII, XXXVIII, and XXXIX, *a* show

FIG. 16.—Minature bowl with perforated nodes, from Site 11, Ozan. (Diam., 2.6 in.)

various forms of decoration applied to this type of bowl, the typical S figures having been entirely lost sight of; pl. XXXIX, *b*, decoration by warts or nodes; pl. XL, *a*, an aberration, in which the small points, frequently seen around the rim of these

bowls, have been exaggerated into large ones, and *b* another in which the handles, instead of being rudimentary like those of XXXIII, *b*, are actually large enough to be useful. Finally, pl. XLI. *a*, presents a ca-

FIG. 17.—Miniature bowl with four perforated nodes, from Site 3, Hot Springs. (Diam. 2.9 in.)

zuela bearing incised instead of engraved decoration, and *b* one with a primitive incised and grooved design. That bowls were sometimes hung suspended from a cord is shown by two small examples, of

which fig. 16, found near Ozan, has two perforated nodes for receiving the string, and fig. 17, from the Hot Springs region, four such nodes.

POTS.—Intermediate between bowl and pot in form are the large red vessel shown in pl. XLII and the two smaller ones in pl. XLIII, of which *a* of the latter plate presents a variant of the scroll pattern, and *b* a figure suggestive of the long "S" seen on the cazuelas above described.

Two hundred and sixty of our vessels may be grouped under the heading of "pots," an inclusive term covering a multitude of forms with the common property of having the height greater than the diameter, and usually, but not always, provided with a constricted neck. Although most of the types grade almost imperceptibly into one another, four stand out with a fair degree of clearness: the urn-like form, the globular, the vase, and the cylindrical vase. Variation in size is shown in pl. XLIV. First considering the urn form, we find it tall in proportion to its diameter, sometimes approaching the cylindrical, and

is best typified by pl. XLV, *a*, a favorite form of cooking-pot, frequently, as in this case, provided with a square bottom. A somewhat different shape is shown in pl. XLV, *b*, with an incised decoration composed of groups of straight lines meeting at various angles. Pl. XLVI, *a*, more rotund, has a chevron decoration, while the main claim to notice possessed by *b* is the fact that it is provided with a base. That the urns were sometimes ornate and elaborate is shown by the two vessels seen in pl. XLVII, of which the writer considers *a* an exceptionally fine specimen of incised decoration, accentuated with impressed dots and notched ridges. The simplest of the globular pots, defined as having a bulging, more or less spheroidal body, is shown in pl. XLVIII, *a*, which has no neck or lip at all, and is decorated by only two parallel lines about the mouth; and a coarse incised line forming a meander; *b* is almost as simple, for, although provided with a lip, it has no decoration except a lot of impressed dots on the top of the rim. This, by the way, is one of the rare vessels

showing shell-tempering to be found in this part of Arkansas. Fine examples of the globular type are shown in pl. XLIX, both vessels being decorated with variants of the scroll, the work in the case of *a* being engraving, of *b* incising. Pl. L exhibits vessels of globular form, one (*a*) showing a decoration composed of concentric circles whose axis is a node, the other (*b*) ornamented with rows of nodes arranged to form a pattern. Decoration by a combination of wide, smooth grooves and incisions is shown in pl. LI, and pl. LII presents two fine examples of a wave design outlined by grooves on a combed background. A similar vessel, but not so well executed, appears in pl. LIII, *a*, while *b* is a very unusual specimen showing a complex pattern brought out by combing alone, the only groove being a band to divide one part of the pattern from another. Another favorite kind of cooking-pot is illustrated in pl. LIV, *b*, of which many, similar in form and decoration, were found; while types like *a* of the same plate, and both vessels in pl. LV, were very frequent, and illustrate

various forms of incised, node and ridge decoration. A pot similar in decoration, but rather unusual in shape and made of very light, thin ware, is shown in pl. LVI, *a*, while *b* is interesting because its decoration has been applied evidently by imprinting the teeth of a comb; and both vessels in pl. LVII show what can be done by way of ornamentation with the simple imprints of the finger-nail in the clay while soft. Engraving is a rare form of decoration for pots, but that it was sometimes used is shown by pl. LVIII, while the presence of a few patterns faintly suggesting the Iroquois ware of New York state and Ontario, may be seen in pl. LIX. Another Iroquois suggestion may be seen in the rims of the vessels in pl. LX, which rise in four points, and in the two four-handled pots illustrated in LXI, which have similar Iroquois-like peaks, but whose handles seem to have been intended for ornament only. The pot *b* of this plate is most suggestive of all, owing to the graceful boldness of its design. Handles that are strictly practical as well as ornamental adorn the two cooking-pots,

representative of a numerous class, seen in pl. LXII, and those with which the vessels in LXIII are provided seem more practical

FIG. 18.—Miniature pot with handles, from Site 1, Ozan. (Height, 3.2 in.)

still. A very small, two-handled pot, only 3.2 in. high, is shown in fig. 18. Intermediate in form between pots and vases are

the two vessels in pl. LXIV, which are decorated with semicircular concentric grooves on the body, sometimes surrounding projections resembling mammae, as seen in *b;* these vessels represent a type which, while found occasionally about Ozan, seemed more abundant in the Hot Springs region. The term "vase" we gave to a subtype of the pot family, usually well made and decorated, and apparently manufactured for something beyond general household use, and characterized by a spheroidal body topped by a cylindrical neck too wide in diameter to bring the vessel within the bottle classification. Vases frequently have two holes bored on opposite sides to afford means of suspension, and, curiously enough, when found to contain anything in the graves, are usually full of very fine clay. Two typical vases are shown in pl. LXV, characteristic both in form and in their engraved patterns, and in the perforations for suspension. Pl. LXVI, *a*, is likewise typical, but in *b*, while the form and the perforations are usual, the grooved and impressed decoration is not. In pl.

LXVII we have variation both in form and decoration, although *a* retains the holes for suspension. Finally, in pl. LXVIII we find

FIG. 19.— Miniature vessel with perforated rim. from Cedar Glades. (Height, 3 in.)

the red vase *a* typical except for a clearly-marked base, and *b* not only provided with four very unusual projections, but lacking

the two perforations. The very small, rude, incised vessel with two perforations shown in fig. 19 seems to have been made for the same purpose, whatever that may have been. Similar to the typical vases in size, in style of decoration, in perforations. and apparent use, but differing in form, are the cylindrical vases shown in pl. LXIX, and LXX, of which *a* and *b* of the first plate, and *a* of the second, are particularly choice examples of the "Red River" style of engraved decoration; but the work on LXX. *b*, is decidedly amateur, to say the least.

BOTTLES.—Turning now to the third great class of pottery, we find that the bottle-shape vessel, with one hundred and eighty-nine specimens, was the least numerous but the most homogeneous type of all. Defined as a vessel with a spheroid or ovoid body, surmounted by a slender, cylindrical neck, the subtypes merge to such an extent that it is not practicable to attempt to distinguish them, so we will arrange them according to decoration, regarding the form only when out of the usual range. Although the average height is about eight

inches, there is considerable variation, as shown by comparison, in pl. LXXI, of the smallest bottle (3.7 in. high) with the largest (14.3 in.). The color is usually yellowish brown, but occasional bright-red bottles came to light. Many bottles are so much alike in form and pattern that they are clearly the work of the same person, but as is the case with most hand-made products, each piece, as a rule, has its own individual features. This is not the case, however, with two bottles found at Washington, illustrated in pl. LXXII, which are so nearly alike that the writer cannot distinguish one from the other, and doubts very much whether the maker could have done so. One of the commonest types of bottle decoration from the Ozan region is the one shown in pl. LXXIII, which bears on the opposite side another similar group of four neatly grooved lines, broken in the middle, and halfway between them, on each side, another group of two or three vertical lines, this time not broken. A variant is shown in *b*. Another popular pattern, always in the engraved technique.

is the cross, several variations of which may be seen in pl. LXXIV and LXXV. This may represent the four quarters of the earth, or the four winds, which we may judge, from Manzanet's remarks, had a ceremonial importance to these people, as they still have to many tribes of the present day.[46] Still another favorite design consists of four series of concentric circles, each series surrounding a sun-like, perhaps symbolic, figure provided with peripheral points, or rays, as shown in pl. LXXVI, the center of which sometimes forms such a projection, as in *a* of this plate, that the bottle has a squarish form when seen from above. A variation of this, which is almost as abundant as the original, has four additional sets of circles drawn as if superimposed on the original four, so arranged that each of these takes in the edges of two of the series supposed to be beneath them. This complicated design may be worked out in pl. LXXVII. One of the commonest of patterns is the scroll, seen in its purest, most typical form in pl. LXXII, but frequently found considerably modified, as

in pl. LXXVIII, *a*, whose fine engraved lines are barely visible; and in *b*, in which the decoration is incised. A combination of engraved patterns and raised ridges as decoration is shown in pl. LXXIX, and forms a type of vessel that was quite widely distributed. A considerable number of bottles have as decoration merely a series of parallel lines about the base of the neck; others have in addition to this a number of little triangles hanging point-down from the lowest line like so many stalactites, as seen in pl. LXXX. The graceful form of *a* in this plate is worthy of notice; also the archaic and rude shape of *b*, which was found in Mound 1, Site 6, Ozan, under circumstances before described, indicating more than ordinary antiquity. When we come to the complex patterns such as are shown in pl. LXXXI, LXXXII, the variety is almost endless; of these pl. LXXXI, *a*, and the colored frontispiece, which shows one of these bottles in its natural colors, are particularly fine examples. Great variety is found also in certain simpler original designs (pl. LXXXIII), of which apparently

no two were made alike. Raised patterns on bottles are very simple—merely loops, such as are illustrated in pl. LXXXIV, or lines and angles, seen on the red bottles in pl. LXXXV. Only one purely angular engraved design was encountered (pl. LXXXVI. *a*); and but few complex grooved patterns are seen on bottles, and these are all of the kind pictured in *b* of the plate referred to. Bottle *a* of pl. LXXXVII shows plainly how the engraved work was laid out and executed after the vessel had been fired, and *b* presents a pattern that evidently was the work of a beginner. Turning now from the patterns to unusual forms of bottles, we find, unique in our collection, the remarkable three-lobed specimen found in a deep grave in Mound 2, Site 1, Ozan, and illustrated in pl. LXXXVIII, *a*. It was difficult indeed to restore, for although the pieces were found together where the vessel had been crushed by the weight of the earth, they were very small, and the ware very fragile. The bottle *b* of the same plate is unusual on account of its four long horns or points; that shown in pl.

LXXXIX, *a*, because of its peculiarly swollen neck; while bottle *b* of the plate last referred to not only has a distinct base, but four mammiform projections. Form variations of a less spectacular nature are seen in the unusually flat-bodied (*a*) and the uncommonly elongate (*b*) bottles in pl. XC; an especially large neck and a notably short one appear in pl. XCI, while the two bottles in pl. XCII have no neck at all. Of these the neckless form with two perforated nodes for the reception of a hanging string (pl. XCII, *b*) was found only about Hot Springs, where it seems quite characteristic. A number of bottles were found whose necks terminated in an animal effigy of some kind, which was sometimes very rude and hardly recognizable, as in pl. XCIII; sometimes nicely done, as in pl. XCIV; but even in these it would be difficult to determine what creature was represented. That bottles were sometimes made by using a bowl as a mold for the bottom is shown by the last two vessels of this type to be illustrated, in pl. XCV.

UNUSUAL FORMS.—We now come to a

POTS, URN FORM, SHOWING VARIATION IN SIZE

a, The largest, from Washington site (height, 14.5 in.). *b*, The smallest, from the same site (height, 2.7 in.)

POTS. URN FORM

a, Square bottom, a common type, from the Washington site (height, 7.3 in.). *b*, Semicylindrical shape, from Site 1 Ozan (height, 5.9 in.)

POTS. URN FORM

a, Herring-bone pattern, from Hot Springs (height, 4.9 in.). *b*, Unusual shape with base, from Site 1, Ozan (height, 5.8 in.)

POTS, URN FORM

a, Decoration by incised curved lines, dots, and ridges; from Site 1, Ozan (height, 6.7 in.). *b*, Similar, with straight lines, from the Washington site (height, 7.9 in.)

POTS, GLOBULAR FORM

Unusual shapes, from Mineral Springs site (height of *a*, 3.6 in.; of *b*, 4.5 in.)

POTS, GLOBULAR FORM

a, Engraved decoration, from the Washington site (height, 5.3 in.). *b*, Incised decoration, from Site 5, Hot Springs (height, 5.1 in.)

POTS. GLOBULAR FORM

a, Concentric circle pattern, from Site 1, Ozan (height, 6.1 in.). *b*, Node decoration, from the Washington site (height, 3.4 in.)

POTS. GLOBULAR FORM. INCISED AND GROOVED DECORATION

POTS, GLOBULAR FORM. GROOVED DECORATION ON COMBED BACKGROUND, WAVE EFFECT
Both from the Washington site (height of *a*, 4.9 in.; of *b*, 5.2 in.)

POTS, SEMIGLOBULAR FORMS. COMBED AND GROOVED DECORATION
Both from Site 5, Ozan (height of *a*, 6.3 in.; of *b*, 5.1 in.)

POTS. SEMIGLOBULAR FORMS

a, Incised herring-bone and meander patterns, from Washington site (height, 5.6 in.). *b*, Incised angular patterns, from Site 1, Ozan (height, 5.2 in.)

POTS, SEMIGLOBULAR FORMS. COMBINATIONS OF INCISED ANGULAR FIGURES, RIDGES, AND NODES, IN DECORATION
a, From Site 5, Ozan (height, 5.7 in.). *b*, From Site 1, Ozan (height. 4.8 in.)

POTS. SEMIGLOBULAR FORMS

a, Light porous ware, incised angular pattern, from Site 4, Hot Springs (height, 5.8 in.). *b*, Unusual decoration apparently made with the teeth of a comb-like implement; from the Washington site (height, 4.7 in.)

POTS, SEMIGLOBULAR FORMS. DECORATION BY FINGER-NAIL IMPRINTS

a, Crude example, from Site 1, Ozan (height, 5.4 in.). *b*, Ornate and carefully executed, from the Washington site (height, 5.7 in.)

POTS, SEMIGLOBULAR FORMS. ENGRAVED PATTERNS, UNUSUAL ON POTS; BOTH FROM SITE 1, OZAN
a, Scroll design (height, 4 in.). *b*, Triangle design (height, 3.7 in.)

POTS, SEMIGLOBULAR FORMS

a, Narrow projecting rim, from Site 1, Ozan (height, 4.9 in.). *b*, Broad band of decoration, from Site 5, Ozan (height, 4.6 in.)

POTS, SEMIGLOBULAR FORMS

a, Peaked rim, from the Washington site (height, 4.3 in.). *b*, Peaked rim, rudimentary handles, from Hot Springs (height, 4.6 in.)

POTS, SEMIGLOBULAR FORMS

a, Slightly peaked rim, ornamental handles, from Site 1, Ozan (height, 5.3 in.). *b*, Peaked rim, ornamental handles, from Site 5, Ozan (height, 3.7 in.).

POTS, SEMIGLOBULAR FORMS. A TYPE PROVIDED WITH TWO HANDLES, LARGE AND STRONG ENOUGH FOR PRACTICAL USE

a, From Washington site (height, 7.9 in.). *b*, From Mineral Springs site (height, 5.7 in.)

POTS, SEMIGLOBULAR FORMS, PROVIDED WITH STRONG, PRACTICAL HANDLES; BOTH FROM THE WASHINGTON SITE
Height of *a*, 4.6 in.; of *b*, 5.4 in.

POTS, VASE-LIKE FORM

a, From Cedar Glades, Dr A. U. Williams collection (height, 5.8 in.). *b*, From Site 5, Hot Springs (height, 4.6 in.)

VASES, TYPICAL FORM. BOTH FROM SITE 1, OZAN
Height of *a*, 5.7 in.; of *b*, 8 in.

VASES. BOTH FROM THE WASHINGTON SITE

a, Typical form, engraved decoration (height, 5.9 in.) *b*, Unusual form, grooved and impressed decoration (height, 5.5 in.)

VASES. BOTH FROM THE WASHINGTON SITE

a, Engraved and impressed decoration (height, 4.6 in.). *b*, Impressed decoration (height, 3.7in.)

VASES, UNUSUAL FORMS

a, With distinct base, from Site 1, Ozan (height, 5.3 in.). *b*, With rounded projections, from the Washington site (height, 3.6 in.)

VASES, CYLINDRICAL TYPE. BOTH FROM THE WASHINGTON SITE
Height of each, 6.3 in.

VASES, CYLINDRICAL TYPE

a, From deep grave at the Mineral Springs site (height, 5.1 in.). *b*, From the Washington site (height, 6.8 in.)

BOTTLES SHOWING VARIATION IN SIZE. BOTH FROM THE WASHINGTON SITE
Height of *a*, 3.7 in.; of *b*, 14.3 in.

BOTTLES, ALMOST IDENTICAL IN FORM AND DECORATION. TYPICAL SCROLL DESIGN. FROM THE WASHINGTON SITE

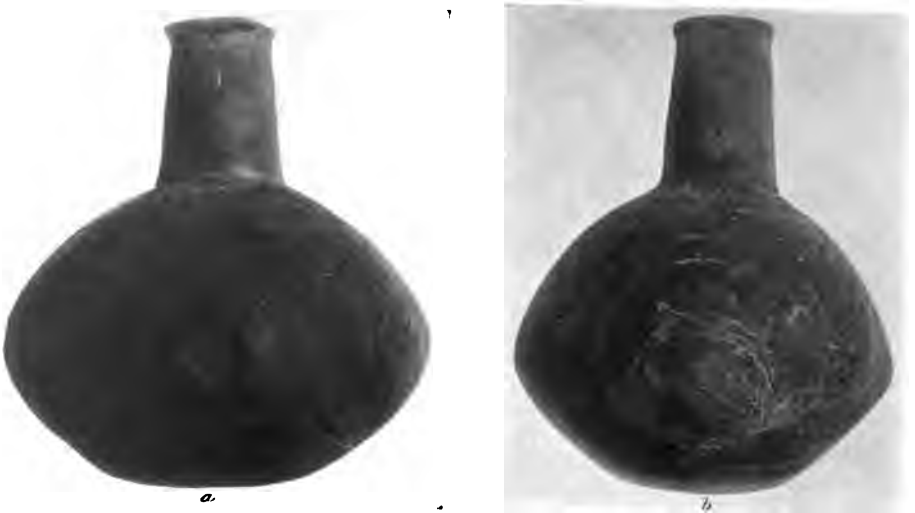
Height of *a*, 7 in.

BOTTLES, BROKEN-LINE PATTERN

a, Common type, from Site 5, Ozan (height, 8.4 in.). *b*, Unusual type, from Site 1, Ozan (height, 7.4 in.)

BOTTLES, CROSS PATTERN; BOTH FROM THE WASHINGTON SITE
Height of *a*, 7.5 in.; of *b*, 9 in.

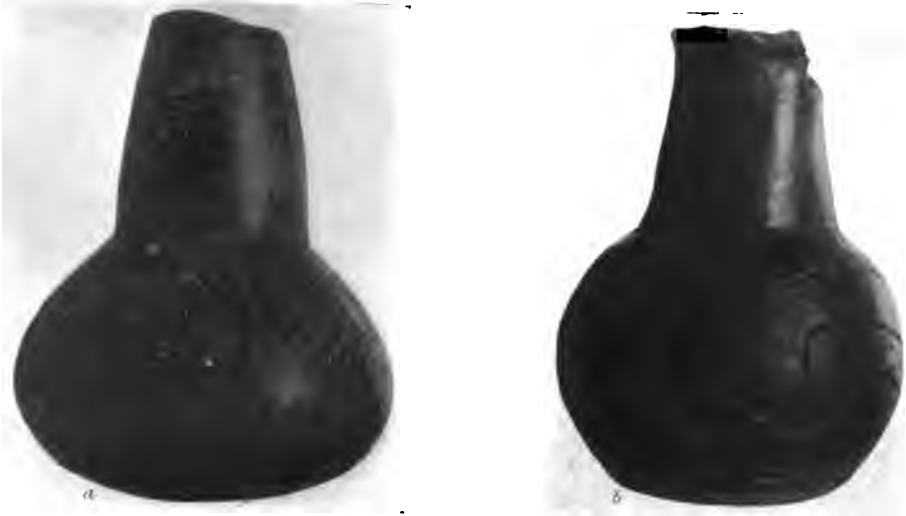
BOTTLES. CROSS PATTERN. UNUSUAL VARIANTS. BOTH FROM THE WASHINGTON SITE
Height of *a*, 8.1 in.; of *b*, 7.4 in.



BOTTLES, SUN PATTERN. TYPICAL EXAMPLES. FROM SITE 6, OZAN
Height of *a*, 6.5 in.; of *b*, 6.7 in.

BOTTLES, DOUBLE SUN PATTERN

a, From the Washington site (height, 7.2 in.). *b*, From Site 5, Ozan (height, 8.9 in,) .



BOTTLES, VARIANTS OF THE SCROLL PATTERN

a, From the Washington site (height, 5.9 in.). *b*, From Site 5, Ozan (height, 4.8 in.)

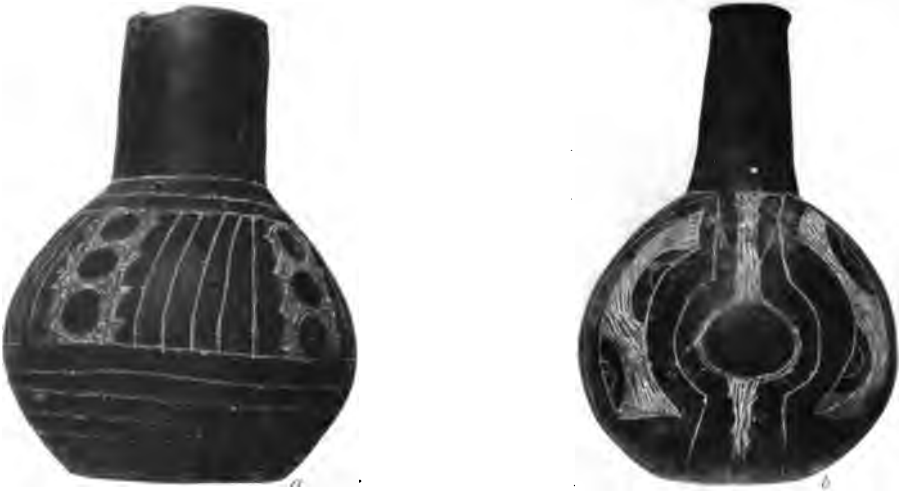
BOTTLES. RIDGE-AND-LINE PATTERN; BOTH FROM SITE 1, OZAN
a, Ornate type (height, 7.6 in.). *b*, Ordinary type (height, 7 in.)

BOTTLES, PENDANT POINT PATTERN

a, From Site 1, Ozan (height, 11.1 in.). *b*, From Site 6, Ozan (height, 8.1 in.)

BOTTLES, COMPLEX PATTERNS; BOTH FROM THE WASHINGTON SITE
Height of *a*, 9.2 in.; of *b*, 7.5 in.

BOTTLES. COMPLEX PATTERNS; BOTH FROM THE WASHINGTON SITE
Height of *a*, 9.3 in.; of *b*, 8.3 in.



BOTTLES. UNUSUAL PATTERNS: BOTH FROM THE WASHINGTON SITE
Height of *a*, 6.4 in.; of *b*, 8.6 in.

BOTTLES, RAISED PATTERNS: BOTH FROM SITE 1, OZAN
Height of *a*, 7.1 in.; of *b*, 6 in.

BOTTLES, RAISED PATTERNS; BOTH FROM SITE 5, OZAN
Height of *a*, 7.5 in.; of *b*, 7.2 in

BOTTLES. UNUSUAL PATTERNS

a, Angular engraved design, from the Washington site (height, 8.3 in.). *b*, Complex grooved design, from Site 11, Ozan (height, 7. 3 in.)

BOTTLES ILLUSTRATING MANNER OF ENGRAVING

a, Pattern partly outlined, engraving begun, from the Washington site (height, 6.5 in.). *b*, An example of unskilful engraved work, from Site 5, Ozan (height, 6.1 in.)

BOTTLES OF UNUSUAL FORMS

a, Triple bottle, from Site 1, Ozan (height, 9.3 in.). *b*, Bottle with projecting points, from the Washington site (height, 5.4 in.)

BOTTLES OF UNUSUAL FORMS, BOTH FROM THE WASHINGTON SITE

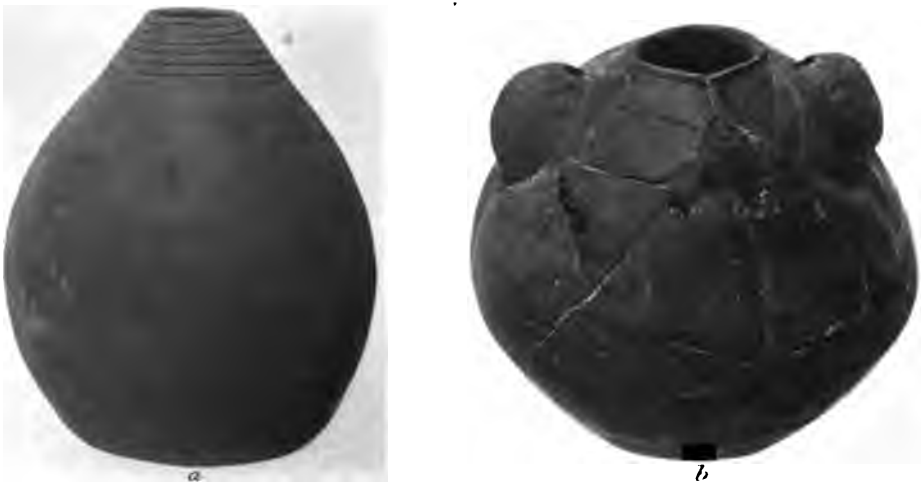
a, With enlarged head (height, 6.9 in.). *b*, With cylindrical base and quadrangular body (height, 7.7 in.)

BOTTLES SHOWING VARIATIONS OF FORM

a, With flattened body, Site 5, Hot Springs (height, 6.5 in.). *b*, With long body, from Site 1, Ozan (height, 9.4 in.)

BOTTLES SHOWING VARIATIONS OF FORM

a. With large neck, from the Washington site (height, 7.1 in.). *b*. With small neck, from Site 11, Ozan (height, 6.9 in.)



BOTTLES, NECKLESS TYPE

a, Decorated with parallel lines; from Site 1, Ozan (height, 6.1 in.). *b*, With perforated nodes for suspension; from Site 3, Hot Springs (height, 3.9 in.)

BOTTLES, EFFIGY TYPE

a, Rude, from the Washington site (height, 4.2 in.). *b*, From Site 1, Ozan (height, 3.8 in.)

BOTTLES, EFFIGY TYPE

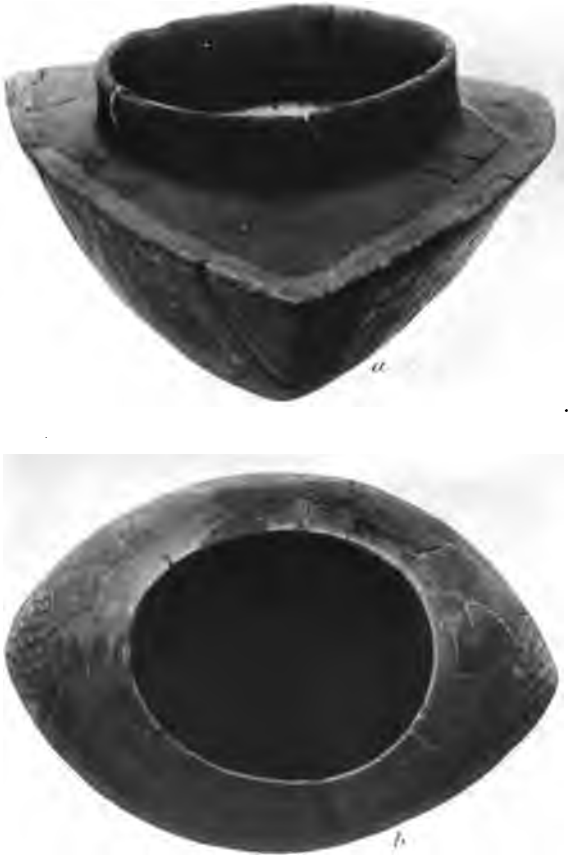
a, Engraved design partly finished, from the Washington site (height, 6.4 in.). *b*, Unusual engraved pattern, from the same site (height, 4.8 in.)

BOTTLES SHOWING MOLDED BASE. THE MAKING OF THESE VESSELS WAS EVIDENTLY COMMENCED IN EARTHEN BOWLS

a, From the Washington site (height, 7.5 in.). *b*, From Site 1, Ozan (height, 10.3 in.)

POTTERY VESSELS, RARE SHAPES

a, Double vessel, from the Washington site (height, 3.3 in.). *b*, Representing one vessel superimposed upon another; from Site 1, Ozan (height, 4.8 in.).

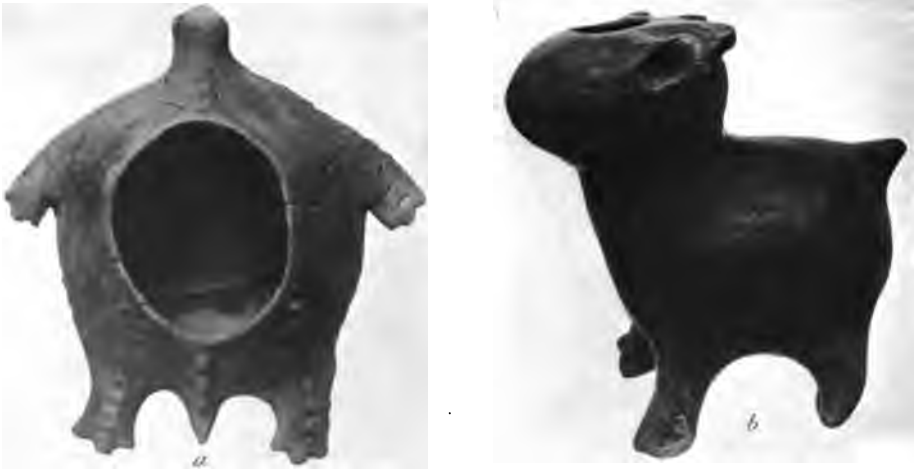


POTTERY VESSELS, RARE FORMS

a, Triangular vessel, from Site 1, Ozan (height, 3.5 in.). *b*, Pointed vessel from the Mineral Springs site (length, 11 in.)

VESSELS REPRESENTING FISH

a, Broad tail, from Site 5, Ozan (length, 7.1 in.). *b*, Narrow tail, from the Washington site (length, 7.9 in.)



POTTERY VESSELS, EFFIGY FORMS

a, Representing a turtle, from the Washington site (length, 7 in.). *b*, Representing a deer, from Cedar Glades, Dr A. U. Williams collection (height, 7.2 in.)

VESSEL REPRESENTING ANIMAL. SHOWING ENGRAVED DESIGNS

From Burial 33, Mound 1, Washington site (height, 5.9 in.)

series of vessels so unusual that they cannot be readily classified with the rest—for instance, the double one shown in pl. XCVI, *a*, consisting of two pots with different decoration, fastened together with strips of clay; and in *b* another pair, superimposed instead of side by side. The triangular vessel in pl. XCVII, which unfortunately does not show the engraved decoration on its top, and the elongate pointed one in the same plate, are also both unique in the collection. Fish effigy vessels were perhaps not so rare as the others shown in this group, but their form makes them difficult to classify either as bowls or pots, hence they are introduced here, in pl. XCVIII. The writer regards this pattern as probably borrowed from the central Mississippi valley region, where such effigies are common—head, tail, little dorsal and ventral fins, and all—but usually not quite so conventionalized as the specimens before us. Actual realism, however, is attempted in the turtle effigy shown in pl. XCIX, *a*, found at Washington; and the deer, *b*, once part of the Dr A. U. Williams

collection, is not far behind it, found in the Cedar Glades country west of Hot Springs, near where our expedition did some of its work. But the most remarkable effigy of all is pictured in pl. c, in which the two views, side and bottom, show distinctly the engraved decoration with which it is covered. It was found in a deep grave in Mound 1, at Washington, along with several other vessels, a celt, and five long-stemmed pipes, hence it probably belonged to a person of importance. As to what animal is represented, we can only say that the head, ears, and tail, if not the legs, are certainly deer-like.

PIPES

As all the pipes found, with the exception of one insignificant specimen crudely made from a natural geode, are of earthenware, it seems appropriate to describe them next in order to the domestic utensils of pottery. In this field we find something original, characteristic of this region only—the remarkable long-stemmed type of aboriginal earthen pipe shown in pl. CI and

CII. First reported by Mr Moore,[47] who collected a good series of them, these pipes seem to be restricted to a limited area in southwestern Arkansas, and eastward and southward for a short distance along Red river. We found them only in the Ozan-Washington-Mineral Springs district, there being no trace of them about Hot Springs. As may be seen by the illustrations, they consist of a long, slender stem of clay (our longest is 13.9 inches) surmounted by a very delicate little bowl, the whole being a triumph of the aboriginal potter's art. Inspection of the stem shows that the hole through it is very large, and extends even beyond the bowl, only to be sealed over at the very end. Some of the smallest of all were found at Mineral Springs, including fragments of a bright-red one, but the usual color is a very light yellow or yellow-brown. Often these long pipes were found standing, stem upward, in one of the corners of the grave near the head. A still commoner type of pipe, used with a separate stem of wood or reed, in the Ozan region, but not found by us elsewhere,

although reported by Moore from farther southward and eastward, is shown in pl. CIII, *a*, *c*, which seems to represent a bowl supported by a claw, usually attached to it, but sometimes partly separated (pl. CIII, *b*, and CIV, *a*). This is often colored red. Variants are seen in pl. CIII, *d*, and CIV, *d*, while *c* of the latter plate shows the large, crude form found near Hot Springs, and *b* a still cruder specimen from the deep grave in Mound 2, Site 1, Ozan. Unusual shapes of pipes are the ornate variant of the long-stemmed type (*a*) and the bird effigy (*b*) shown in pl. CV. Both were found at Site 1, Ozan.

USE OF PIPES.—As to the use of pipes, we learn from both Joutel and Father Jesus María Casañas that they were handed to guests immediately after a meal, with all the requisites of smoking,[48] and one gains the impression from early accounts that among the Caddo and their kinsmen the custom of smoking was more of a social one, and for enjoyment, than ceremonial. Joutel specifically denies that his party found the calumet ceremony

until after they left the Caddo, and neither Manzanet nor Father Jesus María mentions it; hence it is probable that the "pipe of peace" ritual was not adopted by them until the eighteenth century, when it was enacted for Bénard de La Harpe, as will be described later.

CHAPTER XIII

STONEWORK

CHIPPED IMPLEMENTS

MANUFACTURE.—Flint-chipping had reached a high stage of development here, as many of our specimens show, particularly some of the small arrowpoints (pl. CVI-CVIII), and the long knives (pl. CX, CXI) found with certain burials at Mineral Springs. But there is nothing to show that other than the usual methods of percussion and pressure were used to produce them; that is, rough oval blades were first chipped from blocks or pebbles of flint by sharp blows with a round, tough stone used as a hammer, and were then often buried until needed, to keep the flint moist and easily worked (some blades from such a deposit are shown in pl. CXIII), then

elaborated into arrowpoints and other implements by further chipping with a hammerstone, sometimes with a little cylinder of antler interposed between hammer and flint, followed by pressure applied along the edges with a sliver of bone in such manner that small scales of flint were forced off at every thrust. All the foregoing has been established by a study of the methods used by tribes which have retained the art until recent years, and by experiment. Most of the small arrowpoints could have been made from chips struck with a hammerstone from a large block of flint, the elaboration being done with the bone pressure flaker only.

ARROWPOINTS, SMALL TYPE.—Many collectors call these small flints "bird-points" and regard them as not being practical for killing anything but the smallest of small game, but it is certain that they were used as war arrows to kill human beings, for the writer has found them among the bones of skeletons in such a way as to indicate that they had been shot into the flesh and had probably caused death.

It is possible that these small points were used only for war, the larger types, found so abundantly on the surface of the sites, being employed for hunting, which would explain the puzzling phenomenon of the use by the same people of two types of arrowheads so very distinct from one another. That the small points could have been used for any kind of killing, and not birds, nor even men, alone, is shown by the fact that some of the Apache, some California tribes, and other Indians of the Southwest, have used arrows tipped with just such fine small points for all sorts of war and hunting purposes, up to within the memory of men now living. Frequently the small point was fastened to the tip of a foreshaft of hard wood, which gave this end of the arrow the necessary weight, and to this foreshaft was attached the main shaft of cane or of other light material. The top row of pl. CVI illustrates some of the finest of these points, sharp and beautifully made, all from the deepest grave in Mound 2, Site 1, Ozan, while the lower row presents some choice specimens from graves

at Washington, which show unusual types that may have been the special property of certain individuals, and have served as ownership marks to distinguish the weapons of one man from those of another. The two points (*m*, *n*) in the lower right-hand corner may represent insects, while some of the others in the same row show that arrowpoints belonging to the small, fine class may sometimes reach a length equal to that of the average large, heavy point. Pl. CVII gives a good idea of the small-point forms unearthed from the graves at Mineral Springs, some of them very fine, while pl. CVIII shows a general collection of these flints, mostly from the surface. The first two from the left on the bottom row (*s*, *t*) are from graves in the Hot Springs district, the rest of the bottom and most of the middle row from the surface of the same, while the top row, including some points less than half an inch in length, are mainly from the Ozan-Washington region. One point made of rock crystal (*u*) is figured in this plate; the others show many colors, from white and black to various shades of

red, yellow, and gray flint. It was noticed that triangular points were much more common in the Hot Springs country than about Ozan, and the type shown by *y*, *z*, in the lower row of pl. CVIII were found only about Hot Springs.

ARROWPOINTS, LARGE TYPE.—Characteristic arrowpoints of the large, heavy type, all found in graves, are shown in pl. CIX, of which *e*, *f*, and *g* represent the lozenge-shaped form beforementioned as being more abundant on the surface about Ozan, Washington, and Mineral Springs than any other. We cannot attempt here to illustrate the numerous shapes of drills, scrapers, and large points found on the surface, the longest of which measures 9.5 in. and must have been an inch or two longer, for the tip is missing. The longest perfect one is 6.5 in. The writer has never seen chipped points so numerous as here, one hundred to a hundred a fifty perfect specimens for each person being no uncommon "bag" for a Sunday's stroll.

BLADES.—In pl. CX, CXI, is a beautiful series of long flint blades, presumably

knives, found with burials at Mineral Springs, of which the prize specimen is that shown in pl. CX, *b*, with its two barbs, each notched like a little arrowhead. This is made of gray flint, as is *a*, while *c* has a brownish tinge. In pl. CXI, *c* is light gray, *d* is yellow jasper, *b* and *e* are brownish, while *a* is of black flint. This lot were the only knife-like blades found with burials, with the exception of the long, slate specimen from Mound 1 at Washington, shown in pl. CXII, *a*, the smaller chalcedony knife (CIX, *d*) found plowed out with a skeleton at Site 11, Ozan, and an oval implement, which may have been a knife, found with a burial in the Hot Springs district.

OTHER FORMS.—Drills and scrapers were seldom found with burials, but two drills, intended for use in the hand, are shown in pl. CXII, *c*, *d*, which were found at Washington, and two scrapers, made of large flakes, from the deep graves at Mineral Springs, may be seen in *b* and *e* of the same plate. Pl. CXIII illustrates a series of unfinished blades with one completed lozenge-shaped

arrowpoint forming part of a cache of forty-eight specimens found near Ozan—the only real deposit of this kind encountered. Among the thousands of arrowheads picked up on the surface are some that seem to have the character of effigies,

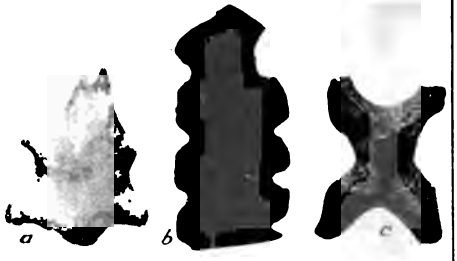


FIG. 20.—Unusual flints from Ozan sites. (Length of *b*, 1.8 in.)

like fig. 20, *a*, which resembles a turtle, or *c*, which may be an insect or a spider. Bizarre forms of no apparent purpose or meaning, like *b*, are rare.

POINTS FROM DEEP DEPOSIT.—Turning now to the specimens from the deep deposit at Lawrence, near Hot Springs, we find the

contrast between the products of the early and the late culture best brought out in pl. CXIV, which shows the small points of the latter (*a*, *c*), found near the surface, compared with a large point of the former (*b*), found at a depth of 9 ft. 9 in. To give a general idea of the types of points used by the earlier people, pl. CXV, with specimens found from a foot to 5 ft. deep, and pl. CXVI, from 5 to 9 ft. deep, are shown; while pl. CXVII illustrates unfinished and reject forms from the levels below one foot.

PECKED IMPLEMENTS

MANUFACTURE.—As in the case of the chipped implements, just described, we find nothing among our specimens to indicate that celts and axes were made differently here than elsewhere. Celts found in all stages of manufacture show that when made of tough stone they were first battered and pecked into form with another hard stone, often a flint pebble, or sometimes, in the Hot Springs district where crystals are common, even a large quartz crystal. Then they were ground smooth

with pieces of gritty stone, and finally, in similar manner, polished. In the case of the jasper and flint celts, it is probable that the implement was first flaked into approximate shape, and then ground with the gritty stone; while grooved axes were made by the same processes as ordinary celts, and the limonite notched hatchets rudely chipped into form. Du Pratz mentions the use of sandstone to grind stone axes into shape,[49] and we found a number of round, flinty hammerstones that had been used so much as grinders that distinct facets had been produced.

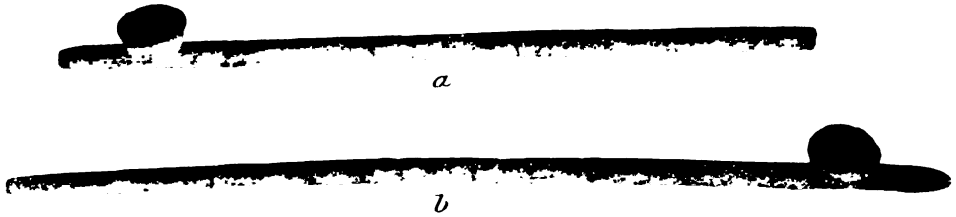
CELTS.—The celts found were of two principal types, one of which, the rounded, is shown in pl. CXVIII, CXIX. All of these were probably hafted as hatchets, but the smaller and narrower ones, not being heavy enough for general use, may have been intended for war or for ceremonial purposes only. Pl. CXVIII, *d*, illustrates a specimen that is now very light and soft, and not suitable for any practical use, owing perhaps to the weathering-out of some ingredient in the stone; while pl.

CXIX, *b*, *c*, show celts that were apparently used and resharpened again and again until only a stub is left. Some of the second, or flat, type of celts, such as are shown in pl. CXX, *c*, and CXXI, *b*, *d*, could also have been used as hatchets, while others, such as the examples exhibited in pl. CXX, *b*, CXXI, *a*, *c*, on account of their form, were probably hafted as adzes. Of the flat celts, that presented in pl. CXX, *a*, is of hematite, *b* and *c* of grayish flinty or cherty stone, *d* of dark flint, and *e* of yellow jasper, while of the series shown in pl. CXXI, *c* is surely of flinty material, and *d* possibly so, but its surface is so altered by grinding and weathering that the only way to be certain would be to break off a piece. Most of the specimens illustrated in these four plates were found in graves.

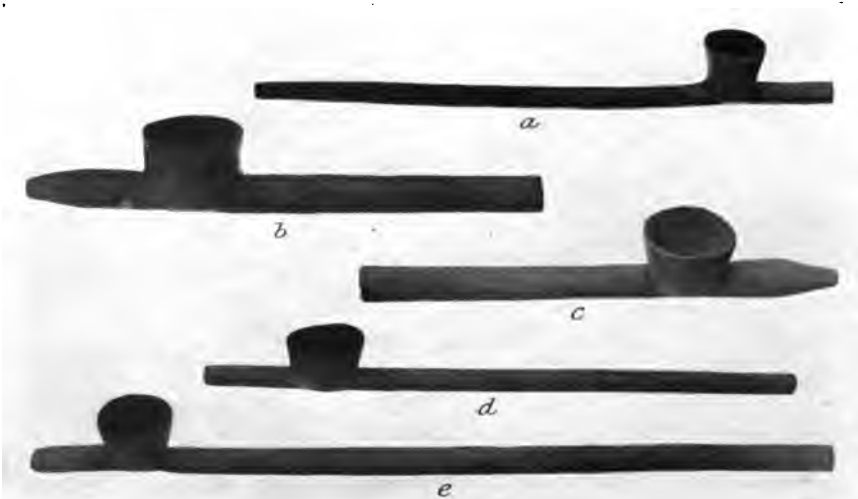
NOTCHED AND GROOVED AXES.—The double-bitted notched axe shown in pl. CXXII, *d*, was the only one found by the expedition, as was the single-bitted polished notched axe, *a*. Typical grooved axes are shown in *b* and *c*, but these were not nearly so abundant as celts. None

were found in graves, nor were notched chipped axes, illustrated in pl. CXXIII. These last are generally made of limonite (*b–d*), but sometimes are of quartzite (*a*).

Use.—A word may be said here as to the use of the different types of axes, not because the information here given represents in any sense a new discovery, but because it may prove of interest to some readers who have no access to the general literature of American archeology. In the first place, the celt type of axe, as above related, is the only kind found in Arkansas graves. The longer and rounder shapes were in all probability the man's axe for war and other purposes, for whenever the sex of skeletons could be distinguished, it was always noticed that these celts were buried with men. They were hafted, as evidenced by occasional specimens found in different parts of the country, by sinking the pointed end of the celt into a transverse hole cut a little way back from the end of a tough and heavy wooden handle, the marks of which can still be seen on some of the specimens found by our expedition. We



PIPES OF EARTHENWARE, LONG-STEMMED TYPE
Both from Site 1, Ozan. (Length of *b*, 13.9 in.)



PIPES OF EARTHENWARE, LONG-STEMMED TYPE

a, *d*, *e*, From the Mineral Springs site. *b*, *c*, From the Washington site. (Length of *e*, 10 in.)

PIPES OF EARTHENWARE, SHORT-STEMMED TYPE

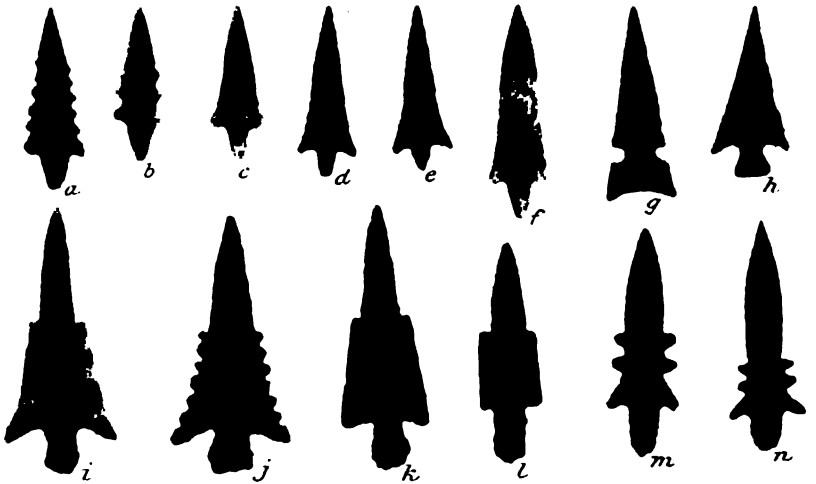
All from Site 1, Ozan. *a* and *c* are common forms, *b* and *d* variants. (Length of *a*, 2.6 in.)

PIPES OF EARTHENWARE, SHORT-STEMMED TYPE. ALL ARE UNUSUAL VARIANTS

a, From Site 5, Ozan. *b*, From Site 1, Ozan. *c*, From Site 5, Hot Springs (length, 2.9 in.). *d*, From the Washington site

PIPES OF EARTHENWARE, UNUSUAL FORMS; BOTH FROM SITE 1, OZAN

a, Ornate long-stemmed pipe (length, 4.3 in.). *b*, Bird effigy, short-stemmed (length, 3.2 in.)

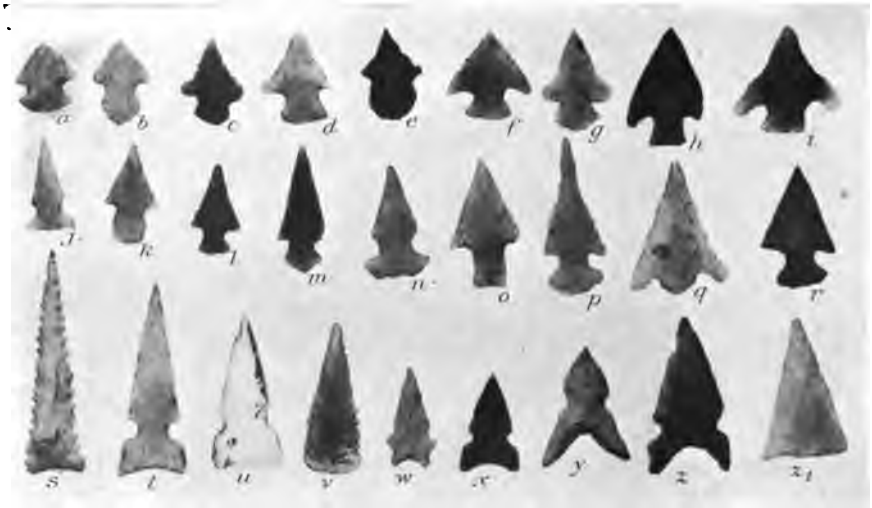


ARROWPOINTS, DIMINUTIVE TYPE

a to *h*, From deep grave, Mound 2, Site 1, Ozan. *i* to *n*, From graves, Washington site. (Length of *i*, 1.8 in.)

ARROWPOINTS, DIMINUTIVE TYPE

All from graves at the Mineral Springs site. (Length of *g*, 2.6 in.)



ARROWPOINTS, DIMINUTIVE TYPE

For the greater part found on the surface. *a, c, f, h, i, o, r, y,* From Ozan sites. *b, d, j–n, p, q, s–x, z, z1,* From Hot Springs sites. *e, g,* From the Washington site. (Length of *s,* 1.4 in.)

ARROWPOINTS, LARGE TYPE, AND KNIFE BLADE
All found in graves on the Ozan sites. (Length of *d*, 5 in.)

BLADES OF FLINT, PROBABLY KNIVES, FROM GRAVES AT THE MINERAL SPRINGS SITE
Length of *b*, 8 in.

BLADES OF FLINT, PROBABLY KNIVES, FROM GRAVES AT THE MINERAL SPRINGS SITE

Length of *c*, 7.2 in.

OBJECTS FROM GRAVES

a, Slate knife, from the Washington site (length, 7.8 in.). *b*, *e*, Scrapers, from deep grave at the Mineral Springs site. *c*, *d*, Drills, from the Washington site. *f*, *g*, Quartz crystals, from the Washington site

BLADES FROM A CACHE

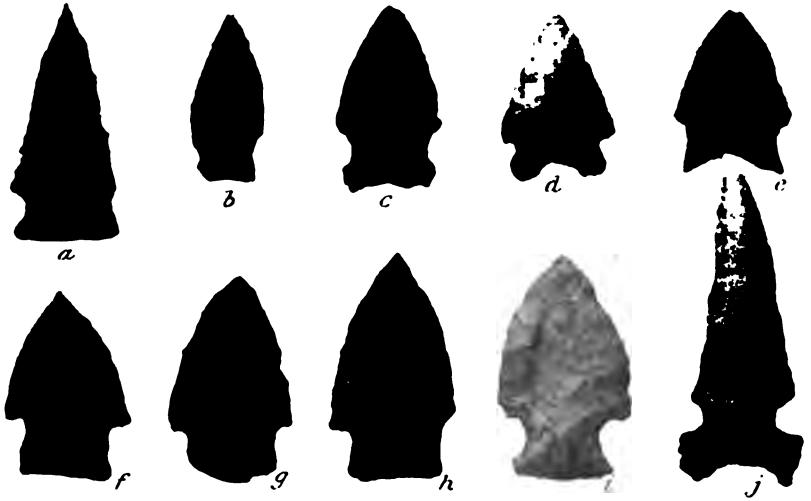
Part of a deposit numbering forty-eight unearthed at Site 7, Ozan. Length of *g*, 3.7 in.

TYPES OF PROJECTILE POINTS CONTRASTED. FROM DEEP DEPOSIT. SITE 1, HOT SPRINGS

a, *c*, Diminutive type, found near surface. *b*, Large type, found 9 ft. 9 in. deep

ARROWPOINTS, LARGE TYPE

Found at depths from 1 to 5 ft. in the Deep Deposit, Site 1, Hot Springs. Length of *g*, 4.2 in.



ARROWPOINTS, LARGE TYPE

Found at depths from 5 to 9 ft. in the Deep Deposit, Site 1, Hot Springs. Length of *j*, 3.5 in.

BLADES AND REJECTS OF FLINT

Found at depths from 1 to 9 ft. in the Deep Deposit, Site 1, Hot Springs. Length of *f*, 4.5 in.

can even tell how the Caddo sometimes carved this wooden handle, for Moore[50] found a bone pin in a mound near Fulton which had been carved to represent a hafted celt, and the restoration of a Caddo tomahawk here shown (fig. 21) has been made from that. Many of the flatter and smaller celts, probably hafted as adzes, as stated, or used as chisels in woodworking, would come under the classification of men's tools also, and were buried with men. It is interesting in this connection to note that among all the tribes visited by the writer where the old arts still linger, woodworking in any form is still considered strictly a man's task. The grooved axe, here considerably rarer than the celt, has not only, as noted, so far as the writer knows, never been found in the graves of this region, but it is sel-

FIG. 21.—Caddo tomahawk (restored)

dom so found in other parts of North America. Most tribes of which we have definite knowledge hafted this by winding a withe about the groove, which was afterward secured with thongs, in addition to which rawhide was frequently stretched wet and sewed fast about the handle, sometimes even covering the poll of the axe, and this rawhide, when it dried and shrunk, made the whole implement strong and solid. Notched axes were probably hafted in a somewhat similar fashion. Both kinds, grooved and notched, were probably mainly used in breaking up firewood, cracking marrow-bones, and for other domestic purposes.

MISCELLANEOUS STONE OBJECTS

Among miscellaneous stone objects are those figured in pl. CXXIV, of which *d* represents a celt that was evidently held in the hand while in use, for the top was rounded to fit the palm, and a faint pit was pecked in each side to give a grip to the thumb and finger; *b* and *c* are apparently rude scrapers for softening skins, and *a* a sand-

stone sharpening implement for bone awls. In pl. CXXV we have, in *a*, a curious object, with two cavities, apparently made of baked clay, which might have been a toy, or a receptacle for paint; *b* is a small stone cup, seemingly made from a natural concretion, while *d* shows part of a larger stone vessel made from a solid piece of sandstone without the aid of nature, and *c* a stone cylinder, the sides of which are covered with vertical parallel grooves in which traces of red paint may be seen. Its use is problematical. All the objects shown in these last two plates were found on the surface.

HEMATITE.—Besides the celt mentioned, the only other objects of hematite found are several paintstones with surfaces showing where the mineral had been ground away to make red paint (fig. 22), a dome-shaped object found in a grave (fig. 23), and an oval object grooved at the ends (fig. 24).

JASPER.—Plate CXXVI illustrates a number of different objects made from jasper or other flinty stones, of which *a*, a little

FIG. 22.—Paint-stone of hematite, from lower part of deep-deposit, Site 1, Hot Springs. (Length, 9. in.)

FIG. 23.—Dome-shaped object of hematite, from the Washington site. (Length, 1.6 in.)

FIG. 24.—Notched object of hematite, from Site 5, Ozan. (Length, 2.1 in.)

more than a flat pebble with a keen edge ground at one end, might have been used as a knife for skinning animals or for cut-

ting meat; *b* is another, more slender pebble, with a similar edge, possibly a chisel; *c* is a rubbing stone for smoothing and polishing pottery, much worn from long use; and *d* is a neatly made object of jasper carefully ground into the form of a four-sided obelisk, whose use is unknown. Fig. 25 represents

FIG. 25.—Rubbing-stone of steatite, from Site 2, Hot Springs. (Length, 1.7 in.)

a highly-polished rubbing-stone of black steatite.

DISCOIDAL.—Only one specimen in any way resembling a "discoidal stone" came to light; it was found in a grave near Hot Springs, and is made of such porous and gritty material that it may have been used

as a skin-rubber to give the flesh side a soft surface during the tanning process. This is illustrated in pl. CXXVII, *b*, along with two "plummets," the only ones found, *a* being from the general digging, and *c* with a burial, both in Mound 1 at Washington.

EAR-PLUGS.—How the delicately-made stone ear-plugs were shaped is something of a puzzle, but the writer thinks from his own experiments along this line that the limestone or sandstone was first chipped, then pecked and ground into discs, and that these were then worked down by patient scraping, sawing, and rubbing with sharp pieces of flint that could be discarded and new ones brought into use as fast as they wore out, and finished with grit-stones. The best pair is shown in pl. CXXVIII, made of fine-grained limestone, and really an aboriginal work of art; it is one of the finest specimens gathered by the expedition. They are circular in form, with a series of points or rays about the periphery, making a figure which appears often on pottery, and seems to be a symbol of the sun. As may be seen, the obverse

side (*b*) bears a shallow, circular depression in which the little stone boss lay loose, which indicates that the hollow was at one time filled with some perishable substance, perhaps gum, in which the boss was imbedded. The two projections on the reverse side (*a*), which were buttoned into the distended perforation of the ear-lobe, are

FIG. 26.—Ear-plug of earthenware, from Site 5, Ozan. (Diam., 1.6 in.)

decorated with incised triangles. The common type of ear-plug, of which a number were found, and which often show signs of a disintegrated copper covering, is illustrated in pl. CXXIX. Two pottery rings, with a groove about the periphery, which might have served as ear-plugs, were found in graves at Site 5, Ozan (fig. 26).

BOAT-STONES.—Boat-stones, of which a

series, all from the surface, is figured in pl. CXXX, were probably made by much the same method as the ear-plugs, even the unfinished quartz-crystal specimen, *f*, and the unusually fine example shown in *a* of pl. CXXXI, made of dark, fine-grained sandstone, found in the general digging of one of the Ozan mounds. The only suggestion the writer can offer as to the use of these objects is furnished by the Iroquois tribes, and some others visited by him, which, until recently, have made little boats out of wood instead of stone, to keep as charms against accidents by water.

BANNERSTONE AND GORGETS.—The large bannerstone shown in pl. CXXXI, *b*, from the surface of a field near Mineral Springs, is made of yellowish-gray, dimly banded slate, and is really a fine, symmetrical piece of work; while the gorgets, shown in pl. CXXXII, are more ordinary. All except *b* were found on the surface; this was a product of the general digging in Mound 1, Site 1, Ozan.

BEADS.—Only two stone beads were found in the Ozan region—one a long,

cylindrical specimen (fig. 27), of some fine-grained, brownish material resembling sandstone, bored from both ends with a fine flint drill; the other a globular, hollow, limonite concretion made into a bead with

FIG. 27.—Bead of stone, from Site 1, Ozan. (Length, 1.7 in.)

FIG. 28.—Bead of limonite from Site 11, Ozan. (Diam., 1.1 in.)

very little drilling (fig. 28); but around Hot Springs steatite beads such as those represented by figs. 29, *b*, *c*, *d*, were fairly common. Fig. 29, *a*, represents an unfinished bead of this type. Baked clay

beads were rare (fig. 30), only one (*a*) being found in the Ozan region, and one (*b*) near Hot Springs, near which latter place was also secured the steatite pendant

a *b* *c* *d*

FIG. 29.—Beads of steatite, from the Hot Springs sites. (*a*, Unfinished, from Site 4; *b*, from Site 2; *c*, from Site 2 (diam., .5 in.); *d*, from Site 4.)

a *b*

FIG. 30.—Beads of baked clay. (*a*, from Washington site (length, 1.1 in.); *b*, from Site 4, Hot Springs.)

(fig. 31), evidently once an ear ornament, the perforation nearly worn through from long use.

FIG. 31.—Pendant of steatite, from Site 2, Hot Springs. (Length, 1.15 in.)

CHAPTER XIV

Woodwork, Basketry, Copper, Bone, and Shell

STONEWORK and pottery were the only industries of the ancient Caddo whose products still remain to us in sufficient quantities to give any real idea of the technique employed, while others, such as their work in skins, woven fabrics, and feathers, have disappeared entirely.

WOODWORK

Of woodworking we have barely a glimpse—merely a few crumbling fragments of ornaments accidentally preserved by contact with copper, one of which, a beautifully realistic parrot's head (fig. 32), formerly covered with a thin sheet of copper, shows a high degree of advancement in the

woodcarver's art. This fine carving was probably done by scratching, sawing, and scraping with sharp flints, and grinding with gritty stones, of which we found one specimen, evidently, judging by a well-marked groove, used to smooth arrow-shafts. Coarser woodwork, like the making of canoes and wooden bowls, was most likely effected with stone adzes aided by fire; and trees were felled by setting fire at the roots, chopping out the charcoal with a stone axe, then repeating the process—all of which methods were well known among many other tribes.

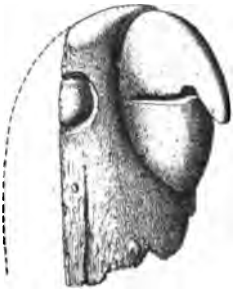


FIG. 32.—Parrot head of wood, originally copper-coated, from deep grave, Mound 2, Mineral Springs site. (Length, 1.5 in.)

BASKETRY

A still fainter glimpse of basketry is given us—a small fragment of what was evidently

once a twilled basketry pouch, of the covered type, such as a number of the Southeastern tribes still use, or have used until recently, for sacred objects and trinkets (fig. 33). This formed the cover of the parrot's head, mentioned above, and, like it, was preserved by the salts of the copper. Joutel, however, mentions hampers for the storage of corn and beans, basketry sieves and winnowing fans, baskets used for ceremonial purposes, and mats that were spread down in the "cabin of assembly" for the elders and their visitors to sit upon.[51] Father Manzanet not only mentions mats of cane, but states that they were brightly colored, and also mentions decorated pillows of cane,[52] while Father Jesus María speaks of basket plates.[53] In this connection it is interesting to note that

FIG. 33.—Fragment of basketry cover for copper-coated parrot's head, from Mineral Springs site. (Diam., 1.2 in.)

the Museum of the American Indian, Heye Foundation, has a specimen of a colored cane mat from the Chetimacha of Louisiana, and basket plates not only from this tribe but from the neighboring Choctaw, Koasati, and Alibamu, which are probably similar to those once used by the Caddo tribes. When material for basketry is mentioned, the old writers usually speak of cane, or reed, which seems, as a rule, to refer to the same plant, but Father Jesus María adds that where these do not grow, they made their baskets from the "leaves of various trees." So far as the writer knows, palmetto and yucca are the only leaves native to the district suitable for basket-making, and he has seen both used by modern Indians for the purpose, so we may probably add both safely to our list of materials.

COPPER

Although a number of traces and small fragments of copper objects were encountered, only a few were in such condition as even to determine their original form, but

it seems certain that all belonged more to the ornament than to the implement class. Next to the copper-covered wooden parrot's head, above described, the best article of this kind was the embossed copper band shown in pl. CXXXIII, *a*, which may have formed part of the decoration of a head-dress, like the silver head-bands used by many Southeastern tribes after the coming of the whites, for it was found near the remains of a skull in Burial 7, Mound 5, Site 1, Ozan, while *b* and *c* of the same plate formed the two parts of the copper covering of a flattened circular object of wood which lay near the waist of the same burial, with a dent in one place in the periphery, where a thong may have been attached. The two embossed copper objects shown in pl. CXXXIV were probably ear-pendants, as they lay on each side of the head of a skeleton at Mineral Springs.

MANUFACTURE.—Whether the few pieces of copper work found were made by these Indians or originated with and were procured from distant tribes in a finished condition, can not now be told, but an exami-

CELTS, ROUNDED TYPE

a, Unusually large, from Site 5, Ozan (length, 8.6 in.). *b*, Uncommonly slender, from Site 5, Hot Springs. *c*, A common type, from the Washington site. *d*, Very light and porous, from the Mineral Springs site. *e*, An unusual curved form, from Cedar Glades.

CELTS, ROUNDED TYPE

a, Typical, from Site 1, Ozan (length, 5.2 in.). *b*, Shortened by much resharpening; from the Washington site. *c*, Same, from Site 1, Hot Springs. *d*, Broad type, from Site 11, Ozan

CELTS, FLAT FORM

(*a* is of hematite, the rest of flinty stones.) *a*, *d*, From the Washington site. *b*, *c*, From the Mineral Springs site (length of *c*, 5.6 in.). *e*, From the Site 2, Ozan

CELTS, FLAT TYPE; UNUSUALLY LONG AND SLENDER

a, From Site 1, Ozan (length, 9.1 in.). *b*, *d*, From the Washington site. *c*, From the Mineral Springs site

AXES OF STONE, NOTCHED AND GROOVED TYPES

a, From Site 9, Ozan. *b*, From the Mineral Springs site. *c*, From Cedar Glades. *d*, From Site 1, Ozan (length, 6.7 in.)

NOTCHED AXES AND HOES

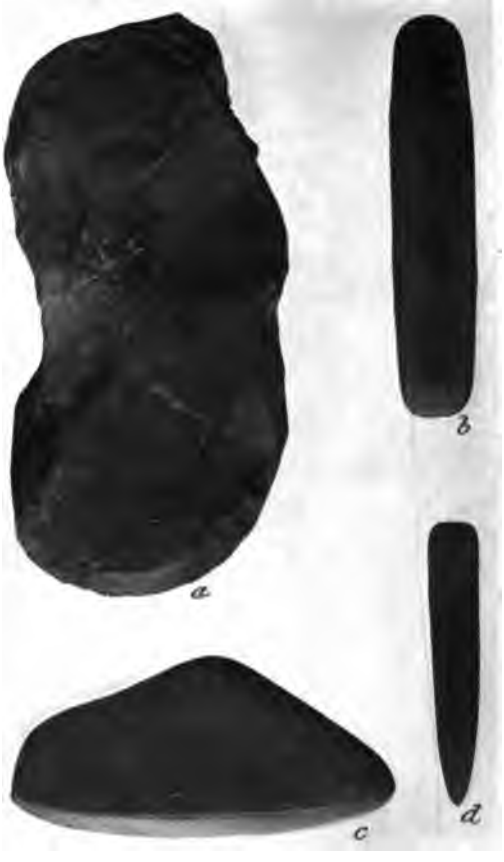
a, *c*, From Hot Springs (length of *c*, 6.6 in.). *b*, *d*, From Ozan sites

IMPLEMENTS OF STONE

a, Sharpener for awls, from Site 11, Ozan. *b*, Scraping implement, from Site 1, Ozan (length, 4 in.). *c*, Scraping implement, from Hot Springs. *d*, Hand celt, from Site 10, Ozan.

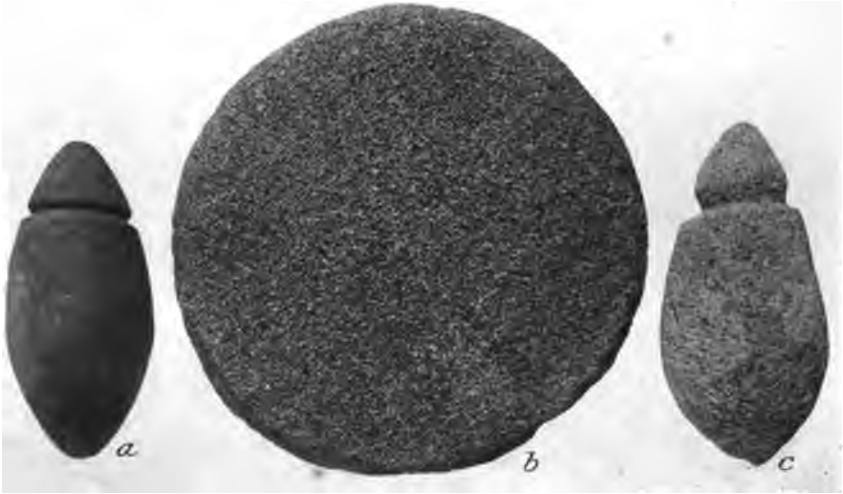
UNUSUAL OBJECTS, ALL FROM THE OZAN SITES

a, *b*, Paint cups (length of *a*, 4 in.). *c*, Grooved stone. *d*, Broken stone vessel



UNUSUAL OBJECTS OF FLINTY STONE

a, Cutting instrument, lower edge sharpened; from Site 5, Ozan (length, 3.7 in.). *b*, Chisel, from the Washington site. *c*, Smoothing stone for pottery, from Site 11, Ozan. *d*, Pointed implement, from Site 5, Ozan.

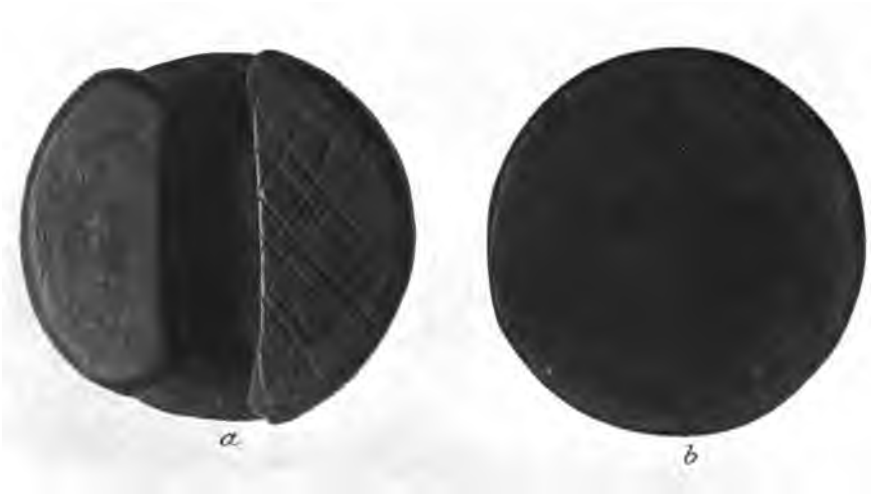


"PLUMMETS" AND DISCOIDAL STONE

a, *c*, "Plummets," from the Washington site. *b*, Discoidal stone, from Site 5, Hot Springs (diam. 4.2 in.)

EAR-PLUGS OF LIMESTONE, FROM GRAVE AT SITE 5, OZAN

a, Back view, showing projections for buttoning into perforated ear-lobe. *b*, Front view, showing boss in position. (Diam., 2.3 in.)



EAR-PLUGS OF STONE, ORDINARY TYPE

a, Back view, showing projections for buttoning into perforated ear-lobe. *b*, Front view. (Diam., 1.5 in.)

"BOAT-STONES"

a, From the Washington site; the others from the Ozan sites. (Length of *c*, 3.1 in.)

a

b

"CEREMONIAL" OBJECTS OF STONE

a, "Boat-stone" from Site 1, Ozan (length, 4.3 in.). *b*, "Bannerstone" from Mineral Springs (length, 7.7 in.)

GORGETS OF STONE

a. *d*, With two perforations, from Cedar Glades, Dr Williams collection (length of *a*, 4.9 in.). *b*, Single perforation, from Site 1, Ozan. *c*, Unfinished, from Site 13, Ozan

nation of the specimens reveals only three main processes involved: (a) that of pounding out the metal into thin, flat form; (b) of cutting and grinding the edges to give the required shape, and then (c) of embossing the patterns, which could be done by laying the sheet of copper on a level piece of soft wood, face down, and denting in the patterns from the back with the rounded tip of a deer antler driven by sturdy blows of the stone hammer. The copper bosses on wooden ear-plugs, the copper covers of stone ones, the hollow halves of the spheroidal ornament shown in pl. CXXXIII, *b*, *c*, were all probably made by carving a concave matrix of proper form in stone or hard wood, for which a convex die of similar material was made to fit. Then the sheet of copper was laid over the matrix and driven down into it by a sharp blow applied to the die, which stamped it into proper form. The writer considers that such methods were probably used by the makers of these ornaments, because among several tribes whose general culture was similar, such as the Seminole and the Choctaw, embossed silver

FIG. 34.—Lizard-like bone object, from the Battle place. (Length, 2.2 in.)

ornaments were still being made in substantially the same manner as late as 1908, when these tribes were visited by him.

BONE

Very few bone implements in condition good enough to warrant saving were found. Of these there were a few awls, of which pl. CXXXV, *d*, is the best example, found back of the skull of a burial at Site 1, Hot Springs; some beads, like *b*, *c*, and *e* of the same plate; two beaming tools or scrapers for removing hair from skins (*a*); and a round-pointed implement (*f*), possibly used for decorating pottery. The methods used in making

ORNAMENTS OF COPPER, FROM GRAVE AT SITE 1, OZAN

a, Part of a head ornament (length, 6.1 in.). *b*, *c*, Parts of spheroidal ornament

EAR PENDANTS OF COPPER, SHOWING TRACES OF EMBOSSED DECORATION

From grave at the Mineral Springs site. The longer is 3.5 in.

these seem to have been the widely distributed processes of sawing and scraping with sharp flints (even the rather unusual bone pin, found at Fulton, shown in fig. 34, which appears to be a lizard effigy, seems to have been so made), to which must be added grinding on gritty stones, of which we found some specimens showing the grooves resulting from sharpening awls (pl. CXXIV, *a*).

a *b* *c*

FIG. 35.—Beads of shell, from Site 1, Ozan. (Length of *a*, .8 in.)

SHELL

The most unusual shell objects found by the expedition were the series of flat, oval, and almost rectangular beads shown in pl. CXXXVI, discovered with a burial at Site 1, Ozan. They seem to be made of the

FIG. 36.—Pendants made of conch shell, from Site 11, Ozan. (Length of *b*, 1.5 in.)

thicker portions of the wall of some large marine univalve or conch, and from the very tip of its columella, where it begins to flatten out, and are drilled edgewise, longitudinally. Besides these, the ordinary cylindrical and ovoid beads made from the thick parts of the columella (fig. 35), disc-shaped beads of varying sizes, and a few

IMPLEMENTS AND ORNAMENTS OF BONE

a, Hair remover for skins, Site 2, Hot Springs (length, 8.6 in.). *b*, Bead, from Site 1, Ozan. *c*, *e*, Beads, from the Washington site. *d*, Awl, from Site 1, Hot Springs. *f*, Implement, from Battle Mound, Fulton.

BEADS OF SHELL, UNUSUAL FORMS
From grave at Site 1, Ozan. The longest is 1.8 in.

pendants made from pieces of the wall of the same conch (fig. 36), were also obtained, together with many examples of an unusual kind of bead made by grinding off one side of a small, marine univalve shell (*Littorina* sp.) to make a hole for the passage of a thread. The examples shown in fig. 37 are all from the Ozan district. In the same mound at Site 1, Ozan, where most of these were collected, were also found a number of freshwater pearls, probably from the mussels of nearby streams, drilled for use as beads, and representing round, oval, and baroque forms (fig. 38). In the Hot Springs region the majority of the beads found were small and cylindrical, most of them either a little smaller or a little larger than typical wampum (figs. 39, *c*, *e*,) or were very small discs (fig. 39, *d*).

FIG. 37.—Bead made of small univalve shell, from Site 1, Ozan. (Length, .4 in.)

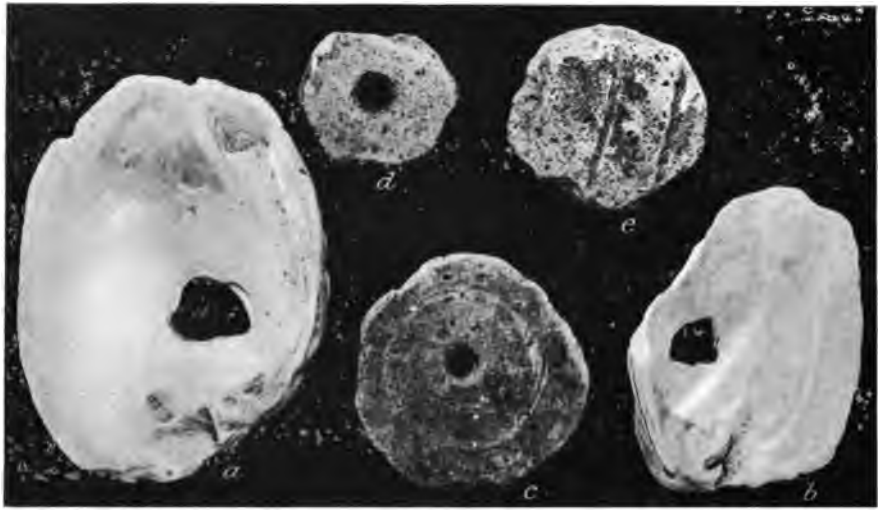
MANUFACTURE.—While it is possible that all of these beads and pendants made from ocean shells were derived, ready-made,

through intertribal trade from the Gulf coast, there is no reason why they could not have been made by the Caddò, being laboriously sawed, scraped, and ground into form with sharp flints and gritty stones. The use of such grinding stones for shellwork is mentioned by Butel-Dumont, who writes also of the perforation of shell ornaments by the aid of fire.[54] How this could have

a *b* *c*

FIG. 38.—Pearls perforated for use as beads, from Site 1, Ozan. (Length of *a*, .35 in.)

been done is a problem, but drilling of shallow holes could be easily accomplished with a flint drill. The longer perforations, like those in the flat beads, could, the writer thinks, be done only by starting the holes with a flint, and drilling them through with a slender shaft of very hard wood, or of bone or copper, used with sharp sand and water, a process needing considerable time and



OBJECTS OF SHELL AND POTTERY

All are from the Hot Springs sites. *a*, *b*, Perforated musselshells (length of *a*, 3.3 in.). *c*, *d*, *e*, Pottery discs

patience. A rather common shell object in the Hot Springs sites was the perforated musselshell, of which examples are shown in pl. CXXXVII, *a*, *b*. The use of these is problematical, unless they were suspended on cords in bunches for use as dance rattles.

a *b* *c* *d* *e*

FIG. 39.—Beads of shell. (*a*, from Site 1, Ozan (diam., 6 in.); *b*, from Site 1, Hot Springs; *c*, from Site 8, Ozan; *d*, *e*, from Site 1, Hot Springs.)

In all our work in Arkansas the shell objects found were mainly in very bad condition, and those in the collection represent merely the few that could be saved.

CHAPTER XV

Means of Livelihood

HE foregoing has been largely a discussion of the tangible products left by the ancient Caddo, and the probable methods used in their making; now we will take up the facts we have been able to derive from the artifacts and the excavations, and from the early writers, concerning other phases of their life. In the first place, their ways of getting a living must have been similar to those employed by the more advanced tribes of the eastern woodland area; at least, we find no evidence to the contrary.

HUNTING

The bones of deer, raccoons, turkeys, and many other creatures, mixed with the ashes of ancient camp-fires, show hunting as one means of gaining a livelihood, and M. de la

Harpe mentions the fact that the Cadodaquious and their associates prepared a feast for him which comprised, among other things, the meat of bear, buffalo, and fish.[55] Flint arrowpoints suggest that some of this hunting, at least, was done with bow and arrow, and Joutel adds a little information on the subject: "The deer," he says, "are very difficult to approach, but the Indians [Assonis] have a plan to overcome that difficulty. They take the heads of deer, which they tan and fix so well, that by putting these on and imitating the animals, they can often make them come within reach. They can also make turkeys come to them."[56] We find little information concerning the buffalo hunt, but it is learned that several of the related bands often joined for this purpose, for sake of security against wild nomadic tribes, as the buffalo hunting ground was a number of days' journey from their homes. This we gain from Father Jesus María, through Mrs Harby, and it is gathered also from both Joutel and Manzanet that buffalo meat was often dried for future use.[57]

FISHING

In the same way, the finding of fish- and turtle-bones in digging, tell of the eating of a number of kinds of aquatic creatures, and stone sinkers for nets suggest one way of securing them. These stone sinkers were of the ordinary, widely distributed variety—merely flat pebbles, notched on the edges to keep the net-strings from slipping; but sometimes, particularly in the deep deposit near Hot Springs, the pebbles were thicker and the two opposite notches were replaced by a groove.

AGRICULTURE

While discoveries of charred corn and beans imply corn-bread and bean-soup at some distant period, stone hoes, polished by contact with the weedy soil, show how the Caddo farmers had to work to obtain them. Some of these were long, rather crude implements of limonite (pl. CXXIII, *c*), resembling the notched axes, and there were also even ruder oblong implements of sandstone or shale, without notches, showing

wear from frequent contact with the ground. More unusual was a thick "turtleback" tool of quartzite, six inches long by three broad, showing on both ends considerable abrasion from digging, which might have been hafted as a hoe, or the upper end wrapped in deerskin to protect the hand, and used without a handle to pick the earth loose in digging graves, and the like. So much for the meager evidence of archeology. Joutel comes to our rescue with an interesting account of the agriculture of the Caddo tribes in his day. He says:

"I noticed a very good method in this nation [Cenis], which is to form a sort of assembly when they want to turn the soil in the fields belonging to a certain cabin, an assembly in which may be found more than a hundred persons of both sexes. When the day has been appointed, all those who were notified come to work with a kind of mattock made of a buffalo's shoulder-blade, and some of a piece of wood, hafted with the aid of cords made of the bark of trees. While the workers labor, the women of the cabin for which the work is being done, take pains to prepare food; when they have worked for a time, that is, about midday, they quit, and the women serve them the best they have. When someone coming in from the hunt brings meat, it serves for the feast; if there

is none, they bake Indian corn-bread in the ashes, or boil it, mixing it with beans, which is not a very good dish, but it is their custom. They envelop the bread that they boil with the leaves of the corn. After the repast, the greater part amuse themselves the rest of the day, so that, when they have worked for one cabin, they go the next day to another. The women of the cabin have to plant the corn, beans, and other things, as the men do not occupy themselves with this work. These Indians have no iron tools, so they can only scratch the ground, and can not pick it deep; nevertheless, everything grows there marvelously."[58]

The above account leaves us to infer that stone hoes must have been in the minority, as he does not mention them.

Father Jesus María adds to this the information that the working party above mentioned began by planting the field of the *xinesi*, or great chief—

"in order that he might have something green for his pleasure; then the fields of the *caddis*, or captains, and officers in turn, in order of rank. The old men came next, and so on down to the young men. The *caddis* and officers worked with the rest, but not the *xinesi* . . . . They would not allow idleness; there was always something to be done, and those who would not perform their parts were punished. They labored industriously in their fields, so

long as the weather was not severe, but when the cold rains fell, or the north winds blew, they would not venture out of their houses. Yet they were not idle; they sat around the fire employing themselves with handiwork. It was then that they made their bows and arrows, their shoes of deerskin, and the implements they needed for husbandry. The women made mats out of reeds and leaves, fashioned the red clay into pots and bowls, and busied themselves with dressing the skins of deer and the hides of buffalo."[59]

CROPS.—With regard to the kind of crops raised, we have Father Jesus María's evidence that they planted two kinds of maize—an early and a late,—very good pumpkins, watermelons, and sunflowers (of which they used the seed, ground with corn, for bread), and several kinds of beans.[60]

CORN GRINDING.—The only kind of apparatus left to us on which the corn might have been ground when once gathered, was the stone mortar, consisting of a slab having a bowl-shaped depression in one or both sides, and the metate, merely a slab with a wide, shallow hollow in one side. Most of both types were of ordinary stone, such as sandstone, but one, a metate, was of limonite. For pounding in the mortar, long, natural

pebbles were used, of which several examples showing considerable use were found, together with one fragment of a regular cylindrical pestle. Grinding stones for the metates were very common—round, thick pebbles, four to six inches in diameter, greatly worn down on one or both flat sides from much grinding. Sometimes the worn sides were pitted, perhaps to give a firmer hold on the implement, or maybe to distribute better the material to be ground. Pitted hammerstones—round, flat pebbles battered around the edges, and provided with a slight depression in the center of each flat side to give better hold to the thumb and finger—were not rare; nor were similar battered hammerstones without pits, all of which were probably used for such general purposes as breaking the bones of game for the marrow, as well as for crushing grain, stone-working, and the like. As among the Iroquois,[61] stone mortars, far from being the only implement used for grinding corn, seem to have been rarely employed, as compared with the large

wooden mortar; in fact, Joutel does not mention the stone variety. He says:

"The women parched it [the corn] and then crushed it to a fine flour . . . . They have large mortars which they make of the trunk of a tree, hollowed with fire to a certain depth, after which they scrape it out and fix it for use. There are up to four women who pound the corn; each has a long pestle about five feet in length, and they take up a cadence like blacksmiths when they strike upon their anvil. When they have pounded a certain time, they throw out the flour and other women pass it through fine sieves, which they make neatly enough of great canes; and when they want to make it very fine, they have little winnowers on which they shake the said flour, when the finest goes to the bottom; the coarse meal and bran come to the top. In this way they make it as fine as can be, as fine as I have seen it in France or elsewhere."[62]

SHELLFISH AND NUTS

River mussels, whose shells are abundant in the camp refuse, seem to have been a Caddo substitute for oysters; and nuts of various kinds, whose shells are frequently found among the ashes, were probably cracked on pitted stones, of which we have a number with from one to four pits on a

side, just as the writer has seen them cracked by the Eastern Cherokee today. Joutel, moreover, relates that the Cenis had a kind of bread made with nuts and sunflower seeds, and the Assonis made soup of dried buffalo-meat, mixed with acorn flour. "This," he quaintly remarks, "did not seem very delicious to me. I can even assert that it took a good appetite to eat it." They also used an oil made of nuts.[63] Pénicaut says: "They have nuts which they crush and make flour, which is mixed with water and made into a soup for their infants. They also make of it sagamite and bread, mixing it with corn flour."[64]

CHAPTER XVI

Clothing and Adornment, Charms, Games

TATTOOING

AS TO the personal appearance of the Caddo tribes at this period we have little, except the repeated assertion that the women would be goodlooking if they did not disfigure themselves with tattooing. This seems to have attracted Joutel's attention more than anything.

"These natives have a singular custom of tattooing their body, on which they make all sorts of figures, which are permanent. In doing this, after pricking the skin, they rub in charcoal ground very fine, which makes the marks endure forever. Some men ornament themselves with birds and animals, others tattoo half the body with zigzag lines; the women tattoo their breasts with lines forming little compartments, very regular, and on their

shoulders they have large flower figures, like those on what we call Spanish lace. I do not doubt that they undergo no small suffering when this kind of thing is done, but it has to be done only once, and for always. Some make for themselves a stripe from the top of the forehead to the chin, others a sort of triangle at the corners of the eyes, in addition to the figures on bosoms and shoulders; they also tattoo the lips, and when they are once so marked, it is for the rest of their lives."[65]

HAIRDRESSING

In speaking of the methods of arranging the hair practised by the Caddo, Joutel states that the women wear theirs "done up behind, but take great pains to part it in front, while the men have their hair cut short like Capuchins, and grease it, and when they have assemblies or feasts, they put on it swan- or goose-down, colored red."[66] It is interesting to note, in this connection, that the Pawnee, a Caddoan people, often cut the hair short, except for a roach on top of the head and a scalp-lock, until recent years. Joutel's information regarding hairdressing is amplified for the Ceni men with the information that "most of these Indians have their hair cut short,

except for a few locks, which they keep wound around a small piece of wood, but all have a little tuft on top of the head toward the back, like the Turks. However, there are a few who keep all their hair, and never cut it."[67] Mrs Harby states that shells were used for roaching the hair, and that the men also removed their beard and eyebrows with great care.[68]

CLOTHING

As to clothing, Joutel visited these people in the warmer part of the year, so there probably was not much to notice, but he does speak, in regard to men, of dressed skins worn over the shoulders and as kilts, and also mentions a small cape of turkey-feathers and little cords, which seems to have been widespread in pre-colonial times.[69] Women's clothing is not mentioned, but it is likely that they were attired, like their sisters in nearby tribes, with a short skirt of skin or of woven stuff, which in cold weather was augmented by a piece of similar material over one shoulder and under

the other, and when necessary, by a robe.[70] Leggings and moccasins, which Father Jesus María says were of deerskin, were probably used by both sexes, especially in winter.

PAINT

The traditional use of paint by most tribes of Indians is established for this locality, archeologically, by the finding of various pigments in the graves—of red, mainly made from hematite iron ore; of purple, which seems to be oxide of iron changed from its original red by the action of heat, applied for this purpose;[71] of white, which is the carbonate of lead forming a crust on lumps of galena ore; and green paint made from glauconite, this last much used to smear the burial offerings. Joutel and others mention the use of paint to decorate the face and body in accounts which will later be quoted at length.

ORNAMENTS

Love of ornament may be seen from the strings of shell beads about the necks of some skeletons, and the occasional presence

at the sides of a skull of ear-pendants of copper (pl. CXXXIV), fragments of wooden ear-plugs with copper bosses, and heavy stone ear-plugs (pl. CXXVIII, CXXIX), some of them showing signs of having been covered with copper. These plugs plainly show that the perforations in the ear-lobes of the wearers must have been very large and the cartilage much stretched in order to button them on; indeed, the hole would have to become from an inch to an inch and a half in diameter before the edge of the lobe could be forced over the rim of the projections at the back of the ornament into the groove prepared for it. Father Jesus María states that at festive times they did not lack for ornaments, such as collars, necklaces, and amulets, "which resembled those the Aztecs wore, with this difference, that the Tejas Indians knew nothing of gold and silver."[72]

CHARMS

Belief in charms is suggested by the finding of the copper-covered wooden parrot head (fig. 32), enclosed with white paint, and probably other things long since

perished, in its little basket; and of the four-pronged, chipped flint shown in fig. 20, *c*, which shows a polish that could have been produced by long rubbing against the wearer's skin and garments, as if suspended from a string about the neck; while the finding of unworked quartz crystals (pl. CXII, *f*, *g*) in the graves, whose hardness, transparency, and gleaming natural facets must have appealed to the Indian as something uncanny, seems to indicate that these also may have been employed as charms.

GAMES

The Caddo Indians, when visited by the writer in 1909, were still playing a number of native games, and it is only reasonable to suppose that they enjoyed even more of them in ancient times; but of all these the only objects found by our digging that may be considered as possibly pertaining to games, are small, flat discs, shaped mostly from pottery, some of them perforated. These are illustrated in pl. CXXXVII, *c-e*, all from near Hot Springs. A few small stone discs were found at Ozan.

CHAPTER XVII

HOUSES

GRASS-HOUSE

AS TO the houses of the Caddo, we have considerable evidence, both historical and archeological. The simplest type seems to have been a dome-shaped edifice of poles covered with thatch, apparently identical with the "grass-house" built by the Wichita, a related tribe, up to within recent years. For this we have detailed description of the houses of the Cenis, a neighboring and closely related people, as recorded by Joutel, one of the most observant of the early French explorers. He says:

"Their cabins are in settlements, seven or eight, twelve or fifteen, in a group, but some distance from one another according as the situation is convenient and the soil suitable for culti-

vation, for their fields lie about their residences [pl. xx]. There are ordinarily eight or ten families in these cabins, which are very large, some being sixty feet in diameter. . . . They are round, in the form of bee-hives, or, better, of great hay-stacks, only higher, and are covered with grass from bottom to top. The fire is built in the middle; the smoke goes out at the top through the grass. These savages make them . . . . by cutting tall trees about as big as the thigh, planting them in a circle, and joining them together at the top; after which they lath them and thatch them from the bottom up. . . . They raise the beds where they sleep about three feet high, fixing them neatly enough with large canes, and separate each bed from the others with mats."[73]

The Assonis, it appears, had similar dwellings, only not so high, and were also near relatives of the Caddo. In writing of them Joutel says:

"They have a great shelf above the door, built of sticks set upright, and others laid across, and canes laid side by side and closely bound together, on which they place their corn on the ear. There is another opposite where they put the hampers and barrels they make of canes and of bark, in which they put their shelled corn, beans, nuts, acorns, and other things, and over these they store their pottery. Each family has its own private receptacles. They have their beds to the right and left in the manner I have described. They also have a large platform,

ten or twelve feet high, in front of their houses, where they dry their ears of corn after gathering."[74]

Joutel's description of the Ceni and Assoni house is confirmed by Manzanet in describing a house of the "Tejas," or Aseney, and he adds that there were no windows, all the light entering through the door, and that the beds were covered with an arch or canopy made of canes,[75] lined with a very bright-colored piece of cane matting, and coming down to the head and foot, making a very pretty alcove. The writer has noted somewhat similar canopies, now made of canvas, over the beds in Wichita grass-houses of today. Manzanet also states that the cane storage baskets are round in form, and that on the shelves also were seen a row of very large earthen pots, used only in making *atole* (the *sagamite* of the French), when there was a crowd on the occasion of some ceremony, and six wooden mortars for pounding corn in rainy weather, "for when it is fair weather they grind it in the yard."[76]

Best of all is the contemporary drawing

of a Caddo village in the seventeenth century, published by Prof. H. E. Bolton, of the University of California, and reproduced in our pl. xx through his courtesy,

FIG. 40.—A Caddo grass-lodge in the seventeenth century, enlarged from a contemporary drawing. (After Bolton.)

which shows this type of house, with the grass thatch extending entirely to the ground (of which fig. 40 is an enlargement), and also the above-mentioned corn-drying platforms which must have

proved equally serviceable, as the writer has noticed among the modern Wichita, for shade arbors in hot weather. The

FIG. 41.—A Caddo lodge of the walled type in the seventeenth century, from a contemporary drawing. (After Bolton.)

drawing shows in addition a number of little grass-houses raised on posts some distance above the ground, almost every enclosure containing at least one, which

doubtless served as store-houses or corn-cribs, and depicts the fences surrounding the enclosures, which were apparently made of brush.

WALLED HOUSE

The plate referred to shows also another type of house (enlarged in fig. 41) which must have had a wall of upright poles, five or six feet high, with canes interwoven to serve as lath, and then plastered with mud, probably mixed with Spanish moss, as were the houses of the Natchez,[78] the whole surmounted by the domed roof of thatch. Fragments of these wattle-and-daub walls, accidentally preserved by burning, which turned the clay into terracotta, were observed on most of the sites explored, but unfortunately no opportunity was found to work out an ordinary building of this sort and thus to ascertain its ground-plan and dimensions, as was done with the "town-house" or "chief's house" described by Mr Skinner in the Appendix to this paper.

TOWN-HOUSE

One of these very "town" (ceremonial) or "chief's" houses, like the one explored, only round instead of square, is shown in the same early drawing of the village mentioned above, and represents the house as being perched on a mound, with an arbor in front of it on a somewhat lower extension of the tumulus. Fig. 42 shows a

FIG. 42.—Use of a mound as a foundation for a building among the Caddo Indians. From a drawing of the seventeenth century. (After Bolton.)

restoration drawn from this. Among the Natchez, both the temples and the houses of the "suns," or chiefs, were placed on artificial mounds,[79] and Joutel mentions that the Cenis "had a great cabin,[80] . . . where they made their rejoicings and their preparations for war,"[81] which may have

been so situated. Meeting or assembly houses were also noted by Manzanet, who says:

"Soon I noticed, outside the yard, opposite the door of the governor's house, another long building in which no inmates could be seen. I asked who dwelt therein, or what purpose it served, and was told that the captains were lodged in that house when the governor called them to a meeting. On the other side I saw yet another and smaller vacant house, and on my inquiring about this one, they answered that in the smaller house the pages of the captain were lodged, for there is a law providing that each captain shall bring his page when the governor assembles the captains, and they observe this custom. As soon as they arrive, they are lodged in that house, and for each one is laid a large, bright-colored cane mat, on which they sleep, with a bolster made of painted cane at the head; and when they return home, each carries with him his mat and pillow. While they attend the meeting the governor provides them with food until he sends them home."[82]

Some idea of the strange proceedings that took place within the walls of these great ceremonial houses, standing high, as many did, on the summits of imposing mounds—a glimpse or two of mysterious oracles, of the medicine-man's uncanny

art—may be found in Father Jesus María's account, as follows:

"There was a house used solely for council meetings, and no one could enter it save on such occasions and as a councilor. . . . The great *xinesi* pretended that he received advice direct from God, given him through two little children who were said to live in the council house, but were never seen by any but himself. He averred that they were sent to him from Heaven, and through them he conversed with God. The chiefs heard this with awe, and thus he insured unhesitating compliance with his orders. When he desired to make public the utterances of the children, he called his chiefs to the council house, where, in an elevated and enclosed place about the size of two square yards, the children were supposed to be. On each side of this place were chests, woven of reeds, in which the offerings made to the children were laid; but when the great *xinesi* thought that the tribes had not been sufficiently generous, he would strike the chest and say the children would not speak until they were given more.

"About the fire in the middle of the council chamber sat many priests, who kept the flame ever burning. When everyone was seated, the great *xinesi* drew out from the fire some coals, upon which he threw the heart of a buffalo and some tobacco, as an offering to the children. As soon as he was through with these offerings, he covered up the fire and closed the door, so that no light could be seen. Then the people

without the house began to sing and dance, and those within were silent, listening for the voice. Then the *xinesi* called in his own voice to the children, begging them to speak to God and say that all in Aseney were going to lead new lives and endeavor to be good, therefore please to make the maize grow, to render their footsteps fleet, to give them health and strength. . . . All this time he held in his hands a small pumpkin; this was supposed to speak if God were pleased. When it was silent, the chiefs became alarmed and promised many gifts from their tribe to the children, and the great *xinesi*. Then he would roll the pumpkin on the floor and plead with the children, repeating the promises. Soon the pumpkin began making a noise and a child's voice was heard, saying that God was satisfied, but would punish them if they broke their word. Then the voice told them all that they should do, and the great *xinesi* sent them off in search of the things they had promised, while the voice warned them to do all they had said. . . . The great *xinesi* remained, stirring the fire until all had gone; then he too came out, and went to his own house, about a hundred steps away. No one was ever permitted to see these children, and all were told that it was death to whomsoever should enter that house and attempt to behold them."[83]

EARTH-LODGE

The third type of edifice was the earth-lodge, not mentioned in this district by

early European adventurers, but used, as has been stated, until recent years, by certain other Caddoan tribes, and its existence established here by abundant archeological evidence. The ruins of this class of habitations may fortunately be studied to better advantage, as they are better preserved, appearing in the form of low mounds. The room, whose outlines may usually be traced by following the edges of its hard-beaten clay floor, generally also marked by a line of post-holes, seems to have been round, oval, or squarish in outline, with diameters ranging from sixteen to twenty-five feet, in one case as much as thirty-three feet. The floor was sometimes level with the ground outside, sometimes sunk below it, sometimes even raised on a mound, while the entrance, a narrow passageway most frequently opening toward the east, was made on the same level as the floor, unless the latter was so sunken that an upward slope was necessary. Some earth-lodges contained two chambers. The distribution of the post-holes, and the charred fragments of roof and timbers

found by our digging, show that these houses were erected by first constructing a frame, probably in the form of a low dome, of very stout poles (the details of which are lost), upon which were placed smaller ones at right angles. These in turn were covered with brush and cane, and then finally with sedge or "sage" grass, when the structure was ready for its heavy coating of earth. Probably, as seen in the Indian earth-lodges of our own day, an aperture was left at the top for the escape of smoke. A sketch showing the detail of the covering of such a roof may be seen in fig. 11, drawn from charred remains found in a mound of the Washington group, a mound that proved to be the ruins of an earth-lodge destroyed by fire, and a modern Caddoan earth-lodge of the Pawnee in pl. XXA.

BURNING OF HOUSES

The fact that so many of the earth-lodges had been destroyed by fire, and so many fragments of burned wattle-and-daub walls of thatched houses were encountered, finds a possible explanation in Joutel's

statement that, "When they remove their dwellings they generally burn the cottages they leave and build new on the ground they design to inhabit;"[84] and in another place, "They had the plan . . . . of leaving the canton where they were, after setting fire to their assembly house to destroy it."[85] The Natchez had the custom of burning the house where a death had occurred.[86] In the case of the "town" or "chief's" house on Mound 1, Site 1, Ozan, and of other buildings, whether of the earth-lodge type or thatched, whose floors are now covered with a layer of earth too thick to have been merely the remains of the roof, the explanation probably is that after the edifice had been purposely or accidentally destroyed by fire, the people simply built the mound higher on the ashes of the old structure, and erected a new building upon it, whose traces, not being protected by a heavy layer of earth, have long since washed away, leaving only the deeply buried floor and charred timbers of the original edifice to puzzle the archeologist.

USE OF HOUSE TYPES

It certainly seems likely that all the larger lodges, of thatch or earth, especially when built on mounds, were "town-houses," used for ceremonies, councils, and the like, the lodge-rooms of societies, or the residences of chiefs, and not private dwellings. Perhaps, if such were the case, the ordinary wattle-and-daub buildings may have been the homes of the tribal *bourgeoisie*, while the proletariat lived in grass-houses that have vanished without leaving a trace.

FURNITURE

As to the furniture of a Ceni lodge, Joutel says:

"Their movables are some buffalo-hides and deer-skins, well cured, and some close-woven mats with which they adorn their cabins, and some earthen vessels which they are very skilful in making, and wherein they boil their meat and roots and sagamite, which, as has been said, is their pottage. They have also some small baskets made of canes, serving to put in their fruit or other provisions. Their beds are made of canes, two or three feet above the ground, handsomely fitted with mats and buffalo-hides, which (latter) are tanned with the hair on to

serve as mattresses and blankets; and these beds are separated one from the other by mats hung up."[87]

TRANSPORTATION

For the transportation of all these goods, when they wished to move from place to place, the Caddo tribes had already secured horses when met by Joutel, but before that, unless they pressed dogs into service, as did many other tribes, they must have depended on their own backs and on the canoe, which was probably made of wood, although this is not stated, in the usual way for that general region, by hollowing out a log with the aid of fire.[88]

FIRE

Fire was made, according to Pénicaut, speaking of the "Nassitoches" (Natchitoches), a Caddo tribe, by "taking a small piece of cedar wood as big as the finger, and a little bit of wood of the *muret*, which is very hard; they place this against the side of the other, holding it between their hands, and by force of grinding them together there comes out of the cedar a bit of fiber

which catches fire. This is done in an instant."[89] Once the fire was started in a lodge, it was kept burning with large logs, as is still done, to the writer's personal knowledge, among the Seminole. Joutel says of the Ceni:

> "The fire never dies in their cabins, as a rule, because the Indians feed it with large logs which keep it burning a long time. When they are burned away, they push up the ends one to another, all the way round. I have seen them put on logs it took eight or nine men to carry, so that even if small wood should be scarce, there would be a good fire."[90]

CHAPTER XVIII

Beliefs and Ceremonies

RELIGION

OF manners, customs, and beliefs, little of a tangible nature remains to us, but we may learn from early writers that they believed in a "great spirit," known under the name of *Ayamat Caddi*, or as *Ayo-Caddi-Aymay*. Interesting in this regard is the statement that their ceremonial leader—

> "had a house reserved for the sacrifices, and when they entered therein they behaved very reverently, particularly during a sacrifice. They never sacrificed to idols, but only to him of whom they said that he has all power, and that from him came all things. . . . *Ayimat Caddi*, in their language, signifies the great captain. This was the name he gave to God."[91]

In spite of these remarks, there is considerable evidence to show that the Caddo

and their relatives also worshipped, like most Indians, a number of minor spirits or powers. This may be inferred from the offering, described below, of food or tobacco to the powers of the sky and the earth, and of the four quarters, and by Douay's statement that the Caddo adored the Sun.[92] He says, "Their gala dresses bear two painted suns," which may explain the circular symbol with peripheral rays seen in the fine ear-plugs (pl. CXXVIII), in patterns on some pottery vessels (pl. LXXVI), and in the form of certain bowls, the rims of which form the circles, and projecting points the peripheral rays (pl. XL, *a*). It is interesting to note in this connection that there is still a Sun clan among the surviving Caddo.[93] It even appears that they thought everything in nature had some sort of spirit or power, which could be prayed to, reasoned with, and led to assist the supplicant, so they "solicited the deer and buffalo, that they should allow themselves to be slain; the maize, that it would grow and let itself be eaten; the air, that it would be pleasant and healthful." Medicine-men

treated the sick by sucking the place where the pain was, also by incantations and ceremonies.[94]

HARVEST CEREMONIES

A rite comparable with the "Green Corn dance," or "Thanks for the Harvest" festival, among many if not all the woodland tribes of the East and South, was noticed by Joutel among the Assonis, and described in the following words:

"When the Indian corn began to ripen I took note of a ceremony which was held in the cabin by one of the elders. After his arrival, the women roasted a great number of ears of Indian corn, which they put in a small hamper and placed on a special stool, which is used only for this purpose, and on which nobody ever sits; this I know, because one day I wanted to sit upon it, and the good old lady told me I had better get up, or I might die. But to return to the ceremony; when all was arranged, the said old man approached the stool accompanied by the chief of the cabin, and there they stood fully an hour, or an hour and a half, muttering over those ears of corn, after which they distributed them to the women, who served some to the young people and also presented some to us. But neither the chief nor the elder ate any of them, and when I demanded the reason from

the chief, he made me understand that he would eat after the sun had completed eight times the tour of the world. . . . I noticed that after this ceremony the women cooked corn every day to eat. These dishes were not withheld from us. They roasted the ears to eat them in that way because the corn was not yet in condition to make flour for bread. I noticed at this time the precautions they take against their dogs, which they do not allow to eat the new corn. They tie up their mouths and attach one front paw to the neck, so that they could not knock down the corn-stalks."[95]

Manzanet seems to have had an experience with one of these same mysterious wooden benches or stools: "I saw a little wooden bench in front of the fire, and the Indians admonished me not to sit upon it, lest I should die," he wrote. But the explanation given him does not coincide with that observed by Joutel. Manzanet was told that it was the chief's, and no one but he might sit upon that stool.[96] Perhaps some stools were reserved for the gods, others for the chiefs. In consonance with Joutel's observations concerning the Green Corn ceremony, is the following statement by Manzanet:

"These Tejas Indians have always had

among them an old Indian who was their minister, and presented their offerings to God. They observed the custom never to taste any eatable without first taking a portion of it to their minister for sacrifice; they did this with the produce of their lands, as corn, beans, watermelons, and squashes, as well as buffalo meat that they obtained by hunting. . . ."

Manzanet invited this functionary to dine with him, and noticed that—

"When this Indian priest took his first mouthful, instead of asking a blessing, he made with the food, as he took it out of the dish, a sign like that of the cross, pointing, as it were, to the four winds, or cardinal points."[97]

Most Indians of today who make offerings to the four cardinal points, add two more—up and down—in order to invoke the powers of heaven and those within the earth, as well as those of the four quarters of the world.

An offering of this kind seems to be described in the following account by Father Jesus María, which Mrs Harby appears to think refers to an ordinary chief's feast, but which bears the marks of a Green Corn festival:

"The *caddi* first threw some of the food into the air, to the ground, and then to each side of

him. (This last, the writer suspects, was to the four directions.) Then he went, all by himself, to the elevated place in the corner of his house, and while the others formed a dance, he talked, first to the corn, that it should allow itself to be eaten; then in the same way to each dish successively which formed the feast. Then he entreated the snakes that they should not bite, and the deer that they would not kill the snakes. Next he consecrated to God the whole harvest of that house, and finished with announcing that God said they should eat, or that they would all die of hunger. Then the feast began."[98]

GREETING CEREMONIES

Joutel describes two ceremonies of greeting to visitors, which may prove of interest here. The first concerns the Cenis, and may be translated as follows:

"The elders marched ahead of us in their gala attire, which consisted of dressed skins of different colors which they wore on their shoulders as scarfs, and as kilts, with bunches of feathers on their heads in the fashion of turbans, also dyed in different colors. There were seven or eight of them armed with sword-blades, with large bunches of feathers at the hilts. the blades made like those of the Spaniards. They had also several large hawk-bells which made a noise like those worn by mules; and with regard to arms, some had their bows and a few arrows, others a war-club or head-breaker; and

they had their faces painted, some black, some white and red."[99]

They were first taken to the chief's house, while things were being prepared at the "assembly house," after which they were led thither. Says Joutel:

"On our arrival we found mats spread out upon the ground, upon which they made signs for us to sit, and the elders placed themselves around us, immediately after which they brought us to eat what they had (soup and various kinds of bread, already described). They made us eat this, and as it had been a long time since we had tasted bread, even Indian corn bread, it seemed to me very good, as indeed it is, when fresh."

After eating, the guests were always supposed to enjoy a smoke.

Still more interesting was his reception by the Cadodoquious, or Caddo proper, who were notified by a messenger of the party's approach, while they waited some distance outside of the town:

"After a while a troop of them arrived, and when we had come together, they made us understand that they had come to carry us to their village. Our Indians signed to us that it was the custom of the country, so we had to submit ourselves and let them do it, but we

felt embarrassed enough at the ceremony when seven of the largest presented their backs or shoulders to us. M. Cavelier [the priest, brother of La Salle] as leader, was the first to mount; the rest of us followed. As for me, I am a large man, and was moreover laden down with clothing, a gun, two pistols, lead, powder, a kettle, and various goods, and so assuredly weighed as much as my mount could carry. I was taller than he, also, and as my legs were likely to drag on the ground, two other natives held them up for me, and so I had three bearers. Other Indians took hold of our horses to lead them, and so we arrived in the village in this ridiculous guise. Our bearers, who had made a good quarter league, had need of rest, so we were helped from our mounts, laughing to ourselves, for it would not do to laugh before them.

"When we arrived at the chief's house, where we found more than two hundred persons had gathered to see us, the elders made us understand that it was the custom to wash strangers upon their arrival, but that, as we were clothed, they would wash only our faces. This an old man did with clear water which he had in an earthen basin, and he washed only our foreheads.

"After this second ceremony, the chief made us a sign to seat ourselves on a sort of little scaffold made of sticks and canes, where the chiefs of the other villages to the number of four, came to harangue us, one after the other. We listened to them with patience, although we understood nothing that they said, and were wearied by their tediousness, and hardly more

by the sun which poured straight down upon us. These speeches. . . . were only to assure us that we were welcome."[100]

THE CALUMET

It seems surprising that the Caddo tribes, who seemed to think so much of the survivors of La Salle's party, did not "chant the calumet," or peace-pipe ceremony, for them, as was done by a tribe they met on their journey toward the northeast, soon after leaving the "Cadodoquious." Perhaps the Caddo did not use this widespread rite at this time, but if that was the case, they must have taken it up later; because the four Caddo villages on Red river enacted the Calumet ceremony for Bénard de la Harpe in 1719, thirty-two years later. La Harpe says:

"The four nations sung the calumet for me, which is a mark of alliance among these peoples. This feast lasts twenty-four hours, during which time their music never ceases even a moment If the ceremony is tiring to them, it is not less onerous to those to whom they render these honors, for they have to give them presents."

Later he adds:

"All these Indian nations are extremely

generous—when they sing the calumet they strip themselves at that time of all the goods they may have. This generosity has no place except among their own people; as for the French, they content themselves with presenting to them only a few deerskins—a very few."[101]

The writer has not been able to find a description of a Caddo calumet, but the sort in general use among all the tribes of the Mississippi valley seems to have been more or less like the kind described by Du Pratz among the Chetimacha. He says:

"The calumet of peace is a pipe-stem at least a foot and a half long, ornamented with the skin of the neck of a wood-duck, of which the plumage, of different colors, is very beautiful, and at the end is a pipe. At the same end is attached a sort of fan, made of the plumes of the white eagle, in the form of a quarter circle, and at the end of each plume is a tuft of hair colored bright red. At the other end is a mouthpiece to smoke."[102]

The same description would answer very well for calumets seen and collected by the writer from the Osage, Kansa, and other tribes within recent years, except that the stem at the present time is the important thing, and a pipe is rarely used with it.

The next tribe met by Joutel's party after leaving the Caddo village was the Cahaynohoua, a people identified as the Cahinnio, whose affiliations seem to have been with the northern tribes of the Caddo confederacy, but who were said to have spoken a language different from that of the Caddo, with whom, however, they seemed to be on friendly terms. They enacted the calumet ceremony for their visitors, and their rites, as described by Joutel, are probably as near as we shall get to the Caddo rite seen later by La Harpe, whose remarks, above recorded, lack detail—in fact, fail to give any idea as to what the ceremony was like. Joutel wrote:

"In the afternoon we attended a ceremony that we had not seen before. A troup of elders, followed by some young men and women, came to our cabin in a body, singing as loudly as they could. The man who walked in front bore a calumet ornamented with various feathers. Having sung a while in front of the cabin, they entered, continuing their songs for a quarter of an hour. After this, they took M. Cavelier, the priest, as our chief, and led him ceremoniously out of the cabin, holding him by the arms. When they had arrived at a place they had prepared, one of them put a great handful of

herbs under his feet; two others brought clear water in an earthen plate, with which they washed his face; after which they made him sit on a skin prepared for this purpose.

"When M. Cavelier was seated, the elders took their places, sitting around him, and the master of ceremonies planted two little wooden forks, and laid a crosspiece upon them, the whole being painted red; then he spread on this a dressed buffalo-hide, and then a white tanned deerskin, and placed the calumet on top of all. The song began again, the women joined in this music, and the concert was further embellished by hollow gourds in which there was coarse gravel to make a noise, which the Indians rattled in measure to keep time with the cadence of their choir; and which was more pleasant, what did one of them do but place himself behind M. Cavelier to support him while he made him sway, dandling him from one side to the other and keeping time with these movements to the same cadence.

"This concert was not yet finished, when the master of ceremonies brought in two girls, one carrying a kind of collar, the other an otter-skin, which they placed on the forks at the side of the calumet. After this, he made them sit at the sides of M. Cavelier in such manner that they faced each other, their legs extended and interlaced, upon which the said master of ceremonies placed those of M. Cavelier so that his legs were upon and across the legs of the two girls. While this was being done, an elder attached a red feather to the back of M. Cavelier's head, tying it with his hair. The song nevertheless continued without stopping.

so that M. Cavelier, bored by the tedious length of it, and besides, ashamed to see himself in such a position between two girls without knowing what for, signed to us to notify the chief that he was not feeling well. At once they took hold of him by the arms and led him back to the cabin, and made him a sign to rest. This was about nine o'clock in the evening, and the Indians passed the rest of the night singing, until some were so exhausted they could sing no more.

"When day dawned, they came back for M. Cavelier, led him out of the cabin with the same ceremony, and made him sit down, singing constantly; then the master of ceremonies took up the calumet, which he filled with tobacco, lit it, and presented it to M. Cavelier, but advanced it and withdrew it ten times before he really gave it to him. When he had finally placed it in his hands, M. Cavelier made out to smoke it and returned it to them; then they made us all smoke in turn, and then they all smoked in their turn, the music continuing all the time. About nine o'clock in the morning, the sun getting very hot, M. Cavelier, whose head was bare, indicated that it was doing him harm, so they stopped their song at last, led him back to the cabin, took the calumet and put it in a deerskin case with the two red wooden forks and crosspiece, and one of the elders gave it to M. Cavelier, assuring him that he could go among all the nations who were their allies with this emblem of peace, and that he would be well received throughout. And this was where we saw for the first time the calumet of peace, never having had any idea of it before

as some have written. This nation is called Cahaynohoua."[103]

They then had to give their hosts presents, as such was the custom.

CHAPTER XIX

War Customs

CRUELTIES

TURNING from peace and its ceremonies, to war, we find that, according to Joutel, the Ceni "made war Turkish fashion, without giving quarter," and in another place he states that they slew women and children with as little compunction as men. He continues:

"They bring back the scalps as trophies, so that one can distinguish the cabins of the warriors by the number of scalps in them. When there are several to divide a scalp, they part the hair, that is, the long portion, and make it into little locks which they hang along a cane which is placed in the row with other scalps. . . . This taking of scalps consists of cutting through the skin all around the head to the ears and the forehead, then pulling off all the skin, which they take pains to tan and soften to keep and make a show of in their cabins."[104]

It appears also that one prisoner was

scalped alive and sent home as a warning to the enemy, and that heads as well as scalps were sometimes brought in as trophies, but perhaps the most cruel thing the Cenis did was, when a prisoner had been tortured to death, to make surviving prisoners of his nation eat pieces of his flesh.

In contrast with this wartime cruelty we find a great deal of kindness, hospitality, and generosity in their home-life and relations with their friends, so much so that Joutel was much impressed by the Caddos' sympathy and humanity in helping with the last sad rites when young M. de la Marle was accidentally drowned, and stated that it would be hard to find the like even in European countries.[105]

WAR FEAST

Father Jesus María records some interesting war customs, stating, according to Mrs Harby:

"All the men who performed some great and heroic feat in war were called, besides their names, *Amay-oxya*, that is, Great Man. They carried for their banners the skins and scalps of

the men they had killed, while all the skulls of their dead enemies were hung on trees near the house of the Great *xinesi*.

"When they had determined to go to war, they assembled six or seven days beforehand, to have their war dance and feast. In front of the dancers a pole was erected, upon which was hung whatever they were going to sacrifice to their god. They offered up to him meat, corn, tobacco, bows, arrows, and fat from the heart of the buffalo, praying to him for the death of their enemies, for strength to fight, fleetness to run, and valor to resist. In front of the pole a fire burned, and nearby sat an Indian painted to represent a demon. . . . The demon who sat by the fire threw the sacrifices into the flames, while the men sat around smoking and rubbing their bodies with handfuls of grease, making their supplications. Every prayer was for victory and vengeance; they asked the water to rise and drown their enemies, the fires to spread and burn them, their arrows to kill them, and of the wind that it would blow all hostile arrows aside. Upon the last day the *caddis* would come forward and make a speech to the tribes in some such way as this: 'Well, then, men, if ye are such, it is not necessary to remind ye of your women, your fathers and sons; but I charge ye here assembled not to allow them to be a hindrance to your victory.'"[108]

VICTORY DANCE

The first ceremony connected with war that Joutel noticed in the Ceni camp,

which took place during the absence of a war-party, worried him not a little until he decided that a messenger must have brought in news of victory. He says:

"Early one morning we saw to our great surprise a troop of women coming into our cabin, with face and body painted and fancifully dressed. When all had arrived they began to sing loudly several songs, after which they started a sort of round dance, all holding hands. Why did they enact this ceremony, which lasts two or three hours? We decided it was because their people had been victorious over their enemies. Their dance ended with some presents of tobacco from the women of the cabin to those who had come in. I noticed during the course of this dance that some of them would take up, from time to time, one of the scalps that hung in the cabin, and make motions with it, holding it now to one side, now to the other, as if to mock the nations from which the scalp might have come. . . . After all these ceremonies, all the women set themselves to work to pound Indian corn, some to parch it, others to make bread; they were preparing to carry food to the warriors."[107]

Soon after this the warriors arrived and repaired to the "assembly house."

VICTORY CEREMONY

After some observances here, and the torture of a prisoner in the village, another

ceremony was performed in each of the principal communal houses, of which Joutel, a resident in one of them, was an interested eyewitness, and was able to write what occurred in considerable detail.

"When all had come in, the elders and most important men took their places, seating themselves upon the mats. Then another one of the elders, not belonging to this group, who seemed to be an orator and took the part of master of ceremonies, made them a speech or discourse of which I understood nothing. A little while later the warriors who had killed enemies during the battle, and who had scalps, marched in, preceded by a woman carrying a long cane reed and a deerskin; then came the wife of the (first) warrior, carrying the scalp, then followed the warrior himself with his bow and two arrows; and when he reached the place where the orator or master of ceremonies stood, the warrior took the scalp and placed it in his hands. The orator having received it, presented it to the four quarters of the world, saying several things which I did not understand, after which he put the scalp on the ground, or rather on a mat spread for that purpose.

"Then another approached in turn, until each one had brought his scalp as a trophy. When all this was finished, the orator made a sort of discourse, and then a feast was spread, the women of the house having taken pains to cook sagamite in several large pots, knowing that

the assembly was coming. When all had eaten and smoked, they started a dance, in the form of a round dance, but which was kept up without stopping. It had a sort of cadence which they marked with their feet and with fans made of the feathers of turkey-cocks in such a way that everything was in time with their songs. These seemed too long to me, as I did not understand them. The ceremony ended with a few presents of tobacco which the people of the house made to the elders and warriors. I should add that the master of ceremonies took sagamite and tobacco to the scalps, as if they were in condition to eat and smoke. . . . When everything had finished here, they visited other houses and repeated their rites, so that the ceremony lasted three days in these villages."[108]

The writer has seen this custom of keeping time to a dance with a fan among the Seminole and other Southeastern tribes.

CHAPTER XX

Death and Burial

Mortuary Offerings

BURIAL of so many objects with the dead suggests a belief in a future life, and the existence of funeral ceremonies, which may have resembled to some extent the spectacular if cruel rites accorded to the dead Natchez war-chief "Tattooed Serpent," so minutely described by Le Page du Pratz.[109] Especially pertinent to our rich finds in the large, deep graves of the Ozan, Washington, and Mineral Springs mounds, graves evidently of important persons, is the statement that when the chief was laid out for burial, he was surrounded with his weapons, and by all the calumets or peace pipes he had received during his

lifetime, and that he was interred in a large grave inside of the temple, which we had previously been told stood on an artificial mound about eight feet high; that two women, sacrificed to accompany him, were placed in the same grave; and that two other persons, "La Glorieuse" and "The Chancellor," were interred outside the temple, in front of it, and probably in the same mound.

A TEJAS BURIAL

An extended description of a "Tejas" burial may be found in Mrs Harby's article, before mentioned, based on Father Jesus María's manuscript, which, as it concerns a nearly related tribe whose customs were quite similar, is probably as near as we can get to the rites practised by the Caddo proper. It is as follows:

"When a prominent man dies among the Tejas, many ceremonies were performed, two Indians being elected to serve as priests. Into the coffin [?] they put bows and arrows, tobacco, and some of the herb called *acoxio*. The priests, entirely nude, passed round and round the coffin, continually moving the contents from place to

place, while they talked to themselves softly, as if praying. Then they went to the place of interment, which was always near the dead man's house. There they talked again to themselves, making a stroke with an axe at the spot where the head of the corpse was to rest, and another stroke at the foot. Then the grave was dug, while the two returned to the house and gave directions about having the body placed in the coffin. This, we are told, was, in the case of the *xinesi* (great chief), as big as an ox-cart. They spoke to the corpse as if it were alive, retiring presently to 'talk to God.' Soon they returned and told the body what they had said, and what God had replied. At this juncture an old man came forth and stood in the midst of the people, carrying the largest weapon he could find. He lamented the death of the man, telling the tribe how much they had lost, what a fine warrior he had been, and how many buffalo he had killed, how vigorously he had ever worked. He admonished them to weep for him, and show that they felt their bereavement. Then he sat close to the dead and spoke to him, telling him that they all loved him very much; that he must go away comforted, and take with him the axes and utensils they had put in his coffin. Then the body was carried away, the men running before it as fast as they could, shooting arrows into the air to announce to the other departed souls that this one was coming. All the buffalo-robes and skins of the deceased were laid in the grave, and the coffin placed on top of them; then the two priests closed the grave, speaking all the time in a low tone. All went home after that, but returned

at once with some of whatever was best that they had to eat. This they put upon the grave, with tobacco and fire; then placing a pot of water there, they went back to their houses to feast. Such were their ceremonies when one of their chiefs died. If it was a common person, they had less pomp, but if it was a *xinesi* they would not bury him for two days, for all the tribes over whom he ruled must perform the ceremonies. After he was interred, they placed before his house a figure of the world, represented by an upright pole upon which was fastened a large globe of fine grass. Upon that globe they put the moon, represented by large sticks formed in that shape.

"Whenever their relatives died, the women screamed and cried, relating their virtues and great deeds. They painted their faces at that time to represent a skull, and when they could cry no longer, they painted tear-drops on their cheeks."

It seems probable that, instead of "coffin" the word "bier" or "litter" should have been used in the above account, but without the original manuscript for reference, the writer can not be sure of this. In another place, apparently quoting Father Jesus María, Mrs Harby says:

"Each soul went to a separate house, and waited until all of its kindred had come. Then they were gathered together and had to go to a new earth to breed anew. It was for that

reason that they buried their dead with their arms and utensils, and carried food to their graves that they might eat and have strength to make the journey and be well provided when they reached the new land."[110]

A CADDO CUSTOM

Joutel did not stay long enough at any one place to see much of death and burial customs, but he observes in his Relation that the wife of the Cadodoquious chief went every morning with a little basket of roasted ears of corn to lay them on the grave of M. de la Marle, the unfortunate youth, one of La Salle's companions, who was accidentally drowned while bathing during their stay among this people.

A "CENI" RITE

The very first ceremony Joutel noticed among the Cenis, however, had something to do with death, and took place very soon after his arrival while he was still rather suspicious of the intentions of his hosts. He wrote:

"I did not sleep very profoundly, not knowing these people. In about three hours and a

half (after I retired) I heard someone walking outside the house, and muttering words. At once I sprang out to see what it was all about, and found some Indians, to the number of five, some of the elders we had seen on arriving, making a circuit about the outside of the cabin. I learned that they did this every little while, because the chief of the cabin had died, and that not long since."[111]

MORTUARY COLORS

The smearing of the vessels and other objects we found in many graves with green paint certainly seems ceremonial, the relic of some forgotten rite, and we must recall here that the inside of the plastered walls of the "town-house" on the large mound at Site 1, Ozan, had been painted a similar green. The use of a special color for burial by relatives of these people is brought out very clearly in Father Manzanet's letter which contains the statement that—

"The governor of the Tejas asked me one evening for a piece of blue baize to make a shroud to bury his mother in when she died; I told him that cloth would be more suitable, and then he answered that he did not want any color other than blue. I then asked him what mysterious reason he had for preferring

the blue color, and in reply he said that they were very fond of that color, particularly for burial clothes, because in times past they had been visited frequently by a very beautiful woman who used to come down from the hills dressed in blue garments, and that they wished to do as that woman had done."[112]

The good Father believed this woman must have been Madre María de Jesus de Agreda, who had visited the region sixty years before; but Father Jesus María states explicitly that the Indians liked blue "because it was the color of heaven."[113] The writer, however, thinks that the woman referred to is a mythological character, a member of the Tejas pantheon—the one who "was born from an acorn, and who gave to certain old men the outline of heaven, which they made in the form of a circle." This woman "then took up her abode in that place and she it was who daily brought forth the sun, and gave birth to the moon and stars, to the rain, the frost and snow, the thunder and lightning."[114] In considering this point, we should remember that many Indians of today do not distinguish between blue and

green, regarding them merely as shades of the same color, "sky-blue" and "grass-blue." Perhaps the green paint used in smearing the funeral offerings was as near as they could get, with the pigments at their disposal, to the blue beloved of the Sky Woman. Or, perhaps, as among some tribes of today, to the ancient Caddo green symbolized springtime, and the rise of a new life after apparent death.

APPENDIX

An Ancient Town, or Chief's, House of the Indians of Southwestern Arkansas

By ALANSON SKINNER

DURING the early part of 1916 it was the writer's privilege to have charge of the excavation of the rather well preserved remains of an ancient Indian "town-house" or "chief's house" that had once stood on a large mound, one of five built on a village-site, situated chiefly on the farm of Al. G. Flowers (colored), on the north fork of Ozan creek, near Ozan, Hempstead county, Arkansas. This mound was of the large, flat-topped type which Mr Clarence B. Moore[1] has rightly considered domiciliary. It was irregular in shape, rising at the

western end to a height of approximately sixteen feet above the surrounding cotton-fields, but dropping, by means of a short, steep terrace, to a more gradually sloping easterly extension, a trifle more than half as high (pl. III). The mound proper had perhaps once been roughly triangular, with a flat summit plateau 14 ft. 4 in. above the original slight knoll on which it had been raised. The entire mound had been reared over an ancient kitchen-midden, and the original surface of the earth was covered to a depth of from eighteen inches to two feet with black camp refuse—charcoal, animal bones, potsherds, flint chips, and arrowpoints, all being abundant. The mound itself was made of ordinary local field earth, most of which had probably been dug out from what now appears as a pond one hundred feet to the eastward, which earth contains very few manufactured objects.

As the first trench dug through the mound from west to east approached the center, a great mass of vitrified clay and charcoal was discovered at a depth of five

feet three inches. The clay, which was burnt until it gave out a metallic ring at each blow of the pick, was thoroughly mixed with some fibrous substance, probably dried grass. In the masses, which were forcibly detached, were to be seen the holes left by poles, probably canes, which in some cases completely perforated large pieces of the burnt clay. This deposit of vitrified clay, burnt wooden beams, and charcoal, was from three feet to three feet six inches in depth, and investigation disclosed at the bottom of the deposit a series of post-holes which marked the ground-plan of the building, of which the clay formed the walls. By enlarging the trench at this point the entire outline of the building was uncovered, showing that it had been rectangular, with a covered entrance-way opening toward the south-east.

Examination of the débris showed that the house had seemingly been built by setting up the poles about six inches apart, lashing on cross-poles, and then filling the interstices with twisted sedge grass or

similar vegetal material. Clay of a semi-liquid consistency was then poured over the thatch and allowed to dry in the sun until the wall became solid. The cross-poles that had been lashed to the uprights were evidently of hollow cane, put in fresh-cut and green, as shown by frequent molds of the leaves in the clay. The upright posts and beams were of solid wood, as indicated by a few charred ends found in the post-holes. The interior of the lodge was daubed with a stucco of fine clay which had been painted a muddy green, and the lodge was thatched with grass. When the ultimate destruction of the house by fire occurred, this thatch became a fine, feathery ash, the powdered remnants of which were well preserved.

The sides of this square house measured somewhat less than twenty feet, enclosing a chamber capacious enough to accommodate a number of Indians during minor ceremonies, at least, and was provided with a covered entry-way facing the southeast, on the southern side of which post-holes showed that a bench had once been

placed there. Other holes indicated that another bench, bed, or platform, had occupied the entire eastern angle of the house.

In the house, but by no means in its center, as one might expect, was a rectangular, baked-clay fireplace, three by four feet. Seven feet nine inches beneath this, on the original surface of the mound, covered by kitchen refuse and by no means systematically buried, were some human bones, seemingly representing the skeleton of a person of advanced years. The skull and the bones of the upper part of the body were missing. Except for the fact that these bones lay under the hearth, thirteen feet down from the summit of the mound, there was nothing to associate them with the house.

On the indurated earth which had once been the floor of the lodge were found small fragments of calcined mammal bones, portions of several pottery vessels, a broken celt, and flint chips, but nothing else. The hard floor seemed to continue indefinitely beyond the limits of the lodge as marked by the post-holes, and may repre-

sent the surface of the mound upon which the house once stood, and which was possibly continuous with the lower eastern plateau. Occasional arrowpoints and pot-

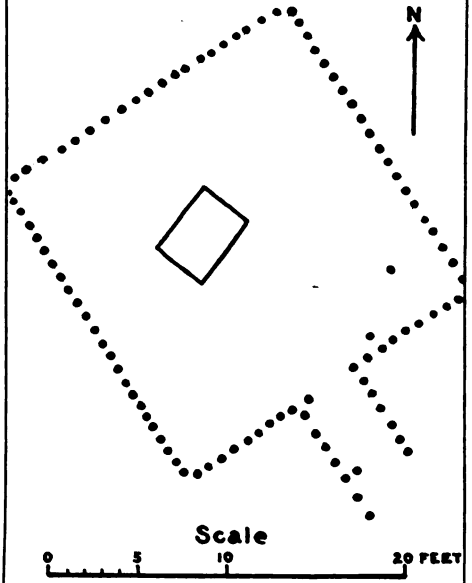


FIG. 43.—Ground-plan of "town-house," Mound 1, Site 1, Ozan

sherds lay on this old surface. To all appearances, the house had been burned, and the additional earth which made up the highest point of the mound was heaped over the still smoldering débris, before rain had quenched the coals and washed away the feathery ashes of the thatched roof.

Mr Edwin F. Coffin, assistant in the expedition work, who surveyed the house-site, prepared the accompanying diagram (fig. 43), which shows the relative positions of post-holes and hearth.

NOTES

1. MOORE, Clarence B. Some Aboriginal Sites on Red River. Reprint from *Journal of the Academy of Natural Sciences of Philadelphia*, vol. XIV, p. 638, Phila., 1912.

2. KNIGHT OF ELVAS. Narratives of the Career of Hernando de Soto in the Conquest of Florida, translated by Buckingham Smith, pp. 158-159, New York, 1866.

3. MOONEY, James. The Ghost-dance Religion. *Fourteenth Report of the Bureau of American Ethnology*, pt 2, p. 1094, Washington, 1896.

4. JOUTEL, Henri. Relation. In Margry, Pierre, *Découvertes et établissements des Français dans l'ouest et dans le sud de l'Amérique septentrionale*, tome III, p. 404, Paris, 1887.

5. DOUAY, *Père* Anastasius. Narrative of La Salle's Attempt to Ascend the Mississippi, in 1687. In Shea, John Gilmary, *Discovery and Exploration of the Mississippi Valley; with the Original Narratives of Marquette, Allouez, Membré, Hennepin, and Anastase Douay*, p. 217, New York, 1852.

6. PÉNICAUT M. Relation. In Margry, op. cit., tome v, p. 420, Paris, 1887.
7. BOLTON, Herbert E. Texas in the Middle Eighteenth Century. *University of California Publications in History*, vol. III, p. 2, Berkeley, 1915.
8. BOLTON, Herbert E. Athanase de Mézières and the Louisiana-Texas Frontier, 1768–1780, vol. I, frontispiece map, Cleveland, 1914.
9. MOORE, Clarence B., op. cit.
10. MOORE, Clarence B. Antiquities of the Ouachita Valley. Reprint from *Journal of the Academy of Natural Sciences of Philadelphia*, vol. XIV, Phila., 1909.
11. MOORE, Clarence B. Certain Mounds of Arkansas and of Mississippi. Ibid., vol. XIII, pt. 1, pp. 531–550, Phila., 1908.
12. JOUTEL, Relation, op. cit., p. 411.
13. JOUTEL'S Journal of La Salle's Last Voyage. A Reprint (page for page and line for line) of the first English translation, London, 1714. Chicago, Caxton Club, 1896.
14. HARBY, *Mrs* Lee C. The Tejas, their Habits, Government and Superstitions. *Annual Report of the American Historical Association for 1894*, p. 63 et seq., Washington, 1895.

15. MANZANET, *Father* Damian. Carta de Don Damian Manzanet á Don Carlos de Siguenza sobre el descubrimiento de la Bahía del Espíritu Santo. (Photographs of original document and translation by Miss Lilia M. Casis.) *Quarterly of the Texas State Historical Association*, vol. II, no. 4, pp. 254 et seq., Austin, Texas, Apr. 1899.

16. HARBY, op. cit., pp. 66–68.

17. JOUTEL, Relation, op. cit., p. 393.

18. Idem, p. 363.

19. MANZANET, op. cit., p. 304.

20. HARBY, op. cit., p. 68.

21. Idem, pp. 73, 74.

22. JOUTEL, Relation, op. cit., p. 413.

23. LA HARPE, Bénard de. Relation du voyage. In Margry, op. cit., tome VI, p. 261, Paris, 1888.

24. BRACKENRIDGE, H. M. Views of Louisiana, together with a Journal of a Voyage up the Missouri River in 1811, p. 30, Pittsburgh, 1814.

25. SCHOOLCRAFT, Henry R. Archives of Aboriginal Knowledge, etc., vol. III, p. 596, Phila., 1860.

26. MOONEY, James. The Ghost-dance Religion. *Fourteenth Report of the Bureau of American Ethnology*, pt. 2, p. 1094, Washington, 1896.

27. SCHOOLCRAFT, op. cit., vol. V, p. 712.

28. FLETCHER, Alice C. "Caddo." In *Handbook of American Indians, Bulletin 30, Bureau of American Ethnology*, pt. 1, p. 179, Washington, 1907.

29. HARRINGTON, M. R. Catawba Potters and their Work. *American Anthropologist*, n. s., vol. 10, no. 3, Lancaster, Pa., July-Sept. 1908.

Idem. The Last of the Iroquois Potters. *N. Y. State Museum, Bulletin 133*, Albany, 1908.

30. BUTEL-DUMONT, Georges Marie. Mémoires historiques sur la Louisiane, tome II, p. 271, Paris, 1753.

31. LE PAGE DU PRATZ, Antoine S. Histoire de la Louisiane, tome II, p. 178, Paris, 1758.

31a. Through an error the decoration of the vessel shown in the frontispiece is called in the caption "incised" instead of "engraved."

32. MOORE, Clarence B. Certain Aboriginal Remains of the Black Warrior River. Reprint from *Journal of the Academy of Natural Sciences of Philadelphia*, vol. XIII, pp. 137, 148, 171, 191, et seq., Phila., 1905. Moundville Revisited, ibid., p. 347 et seq., Phila., 1907.

33. HOLMES, W. H. Aboriginal Pottery of Eastern United States. *Twentieth Annual Report of the Bureau of American Ethnology*, pl. cvi, CXVIII, pp. 136, 138, Washington, 1903.

34. LE PAGE DU PRATZ, op. cit., tome I, p. 124, Paris, 1758.

35. JOUTEL'S Journal of La Salle's Last Voyage, op. cit., p. 109.

36. MANZANET, op. cit., p. 303.
37. HARBY, op. cit., p. 75.
38. JOUTEL, Relation, pp. 340, 343, 364, 389, 394, 400.
39. HARRINGTON, M. R. Some Seneca Corn Foods and their Preparation. *American Anthropologist*, vol. 10, no. 4, Oct.-Dec. 1908.
40. MANZANET, op. cit., p. 304.
41. HARBY, op. cit., p. 75.
42. JOUTEL, Relation, p. 389.
43. PÉNICAUT, Relation, p. 468.
44. LE PAGE DU PRATZ, op. cit., tome II, p. 179.
45. JOUTEL, Relation, p. 405.
46. MANZANET, op. cit., p. 306.
47. MOORE, Clarence B. Some Aboriginal Sites on Red River. Reprint from *Journal of the Academy of Natural Sciences of Philadelphia*. vol. XIV, p. 549, Phila., 1912.
48. JOUTEL, Relation, op. cit., pp. 343-344. HARBY, op. cit., p. 76.
49. LE PAGE DU PRATZ, op. cit., tome II, p. 166.
50. MOORE, Clarence B. Some Aboriginal Sites on Red River, op. cit., p. 630.
51. JOUTEL, Relation, pp. 345, 367, 394, 400, 408.
52. MANZANET, op. cit., p. 304.
53. HARBY, op. cit., p. 75.
54. BUTEL-DUMONT, op. cit., tome I, pp. 94–95.

55. La Harpe, Bénard de. Relation du voyage, op. cit., p. 261.
56. Joutel, Relation. op. cit., p 403.
57. Harby, op. cit., p. 75. Manzanet, op. cit., p. 299. Joutel, Relation, op cit., p. 389.
58. Joutel, Relation, pp. 363-364.
59. Harby, op. cit., p. 68.
60. Idem., p. 75.
61. Harrington, M. R. Some Seneca Corn Foods and their Preparation, op. cit., p. 575 et seq.
62. Joutel, Relation, op. cit., p. 367.
63. Idem., pp. 343, 389-390.
64. Pénicaut, op. cit., p. 468.
65. Joutel, op. cit., pp. 349, 363.
66. Idem., p. 493.
67. Idem., p. 356.
68. Harby, op. cit., p. 75.
69. Joutel, op. cit., pp. 341, 353, 356. Le Page du Pratz, op. cit., p. 191.
70. Le Page du Pratz, op. cit., pp. 191-193.
71. Moore, Clarence B. Some Aboriginal Sites on Red River, op. cit., pp. 514, 531–548, 594.
72. Harby, op. cit., p. 78.
73. Joutel, Relation, pp. 341, 343, 345.
74. Idem., p. 394.

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75. The manuscript says *de ocate* or *de ocatl*, which Mrs Harby translates "palm leaves" and Miss Casis "reeds." The word seems to be a modification intended for the Aztec *oclatl*, meaning "cane."

76. MANZANET, op. cit., p. 303.

77. BOLTON, Herbert E. Texas in the Middle Eighteenth Century. *University of California Publications in History*, vol. III, frontispiece, Berkeley, 1915.

78. LE PAGE DU PRATZ, op. cit., tome II, p. 174, Paris, 1758.

79. Idem., tome III, p. 16.

80. PÉNICAUT, M., Annals of Louisiana, translated from a copy of the original manuscript in the Bibliothèque du Roi, Paris. In French, B. F., *Historical Collections of Louisiana and Florida*, pt 6, p. 94, New York, 1869.

81. JOUTEL, op. cit., p. 343.

82. HARBY, op. cit., p. 304.

83. Idem., pp. 80-81.

84. JOUTEL'S Journal, p. 109.

85. JOUTEL, Relation, p. 357.

86. LE PAGE DU PRATZ, tome III, p. 57.

87. JOUTEL'S Journal, p. 109.

88. JOUTEL, Relation, p. 408.

89. PÉNICAUT, Relation, p. 469.

90. JOUTEL, Relation, p. 350. MANZANET, op. cit., p. 303.

91. MANZANET, op. cit., p. 306.

92. Douay, op. cit., p. 217.
93. Fletcher, Alice C., "Caddo," op. cit., p. 181.
94. Harby, op. cit., pp. 70–71.
95. Joutel, Relation, pp. 400–401.
96. Manzanet, op. cit., p. 304.
97. Idem., p. 306.
98. Harby, op. cit., p. 76.
99. Joutel, Relation, pp. 341–343.
100. Idem., pp. 404–406.
101. LaHarpe, Relation, pp. 265–266.
102. LePage du Pratz, op. cit., tome I, p. 105.
103. Joutel, Relation, pp. 416–419.
104. Idem., pp. 354, 377.
105. Idem., pp. 407–408.
106. Harby, op. cit., pp. 77–78.
107. Joutel, Relation, pp. 375–376.
108. Idem., pp. 379–380.
109. LePage du Pratz, op. cit., tome III, p. 57.
110. Harby, op. cit., pp. 70–73.
111. Joutel, Relation, pp. 407–408, 346.
112. Manzanet, op. cit., p. 311.
113. Harby, op. cit., p. 78.
114. Idem., p. 70.

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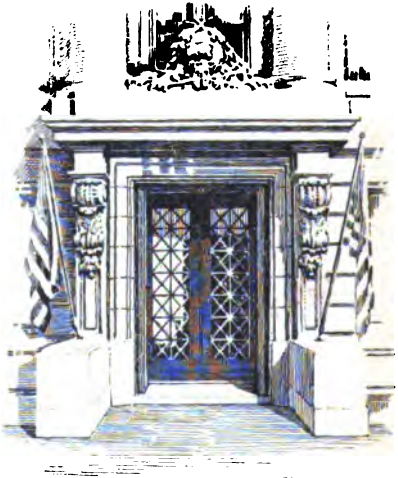

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